

# c50RP/RX, c67RP/RX Service Manual



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The Company warrants to Buyer that the c50/c67R (hereinafter, the "Product"), if properly used and serviced, will perform substantially in accordance with the product data sheet and users manual, and will be free from defects in material and workmanship for one year following date of shipment. This warranty does not apply to air filters and other consumable parts.

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Part Number: 020-0691-00A

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# Preface

c50/c67R displays may be installed in many different configurations (stand-alone, banner, tower or wall) and can be mounted upright or from the ceiling. A common configuration is a wall of several units high by many units wide to create a large video screen.

## Audience

This Service Guide is intended for factory trained and certified QST (Qualified Service Technician) personnel only.

**WARNING!** The procedures described in this manual could expose personnel to UV light, hot surfaces, and potentially lethal high voltages. You must observe all safety notices while working on the display(s). See ["Safety" on page 3](#) for complete information about safety standards and practices that should be followed when working on the c50/c67R.

## Qualified Service Technician Training

In order to become a Qualified Service Technician (QST), you need to attend training sessions and pass exams at Planar's online testing site. You only need to take exams related to the products for which you will service. Classes are offered quarterly in the United States and annually in Europe, the Middle East & Africa (EMEA). In order to remain a QST, you must be recertified every three years. For more information about becoming a QST, contact [training@planar.com](mailto:training@planar.com)

## Contacting Technical Support

If you have followed the procedures and troubleshooting sections in this manual and are unable to find a solution to your problem, please contact Planar's Technical Support Department.

|                      |                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------------------------|
| via mail:            | Planar Systems, Inc.<br>Control Room and Digital Signage<br>1195 NW Compton Drive<br>Beaverton, OR 97006 |
| via e-mail:          | <a href="mailto:planarsupport@planar.com">planarsupport@planar.com</a>                                   |
| via phone:           | +1-503-748-5799                                                                                          |
| via toll-free phone: | +1-866-PLANAR1 (752-6271)                                                                                |
| via fax:             | +1-503-748-5532                                                                                          |

## How This Manual is Organized

This manual may be used online or printed on paper. Most hyperlinks appear with [blue underlining](#) and when clicked on screen, display the linked section.

There are five main sections in this manual. The first three sections contain methods of diagnosing problems. The last two sections contain service and maintenance procedures, which are presented hierarchically.

### Diagnosing Problems

There are three separate sections to help you diagnose problems with the display.

#### Troubleshooting

The [Troubleshooting c50/c67R](#) section contains lists of symptoms (such as “The screen is black.”) that are linked to a series of detailed questions that lead you to a solution. This is a good place to start. [See "c50/c67R Troubleshooting Procedures" on page 11.](#)

#### On-Screen Codes

The On-Screen codes are red and amber LEDs that flash in specific patterns on the screen. The pattern of flashing lights can tell you what is wrong with the display. These flashing lights are particularly helpful when the lamp won't light. The [On-Screen Codes](#) section lists the codes in a visual form. You can click on any of them and go to the corresponding explanation. [See "On-Screen Codes" on page 43.](#)

#### Control Board LEDs

The [Control Board LEDs](#) section explains the meaning of each of the LEDs found on the control board.

### Service and Maintenance Procedures

The maintenance and service procedures are divided into two sections:

- Front service access (["Front-Access Maintenance and Service Procedures" on page 65](#))
- Rear service access (["Rear-Access Maintenance and Service Procedures" on page 125](#))

If your installation permits only front access, the rear access procedures are not for you. Be aware that sometimes a picture from the Front Service section is shown from the rear view.

#### Service Task Hierarchy

All the service tasks in this manual are hierarchical. For example, to install or remove the Video Input Module (*Task 1.2.1.1 Install/Remove Video Input Module (VIM)*), you must first perform the “parent” tasks that contain it, namely:

*Task 1 Gain Access: Remove Screen, Task 1.2 Remove/Replace Control Board, and Task 1.2.1 Gain Access: Open Control Board.*

After performing these “parent” tasks, you may then install or remove the VIM.

**Note:** These procedures require a Planar remote control. You may also use RS232 commands to perform these procedures, provided that you know the RS232-command equivalents.

## About the c50/c67R

The c50/c67R family of displays is further divided between single-lamp systems and dual-lamp systems. In the single-lamp system, there are two lamp wattages: 120W and 150W. The lamps in the dual-lamp displays are 120W. When there are differences related to servicing these lamps, they will be addressed.

## Safety

Always follow proper safety practices when operating or servicing the c50/c67R. Keep the following points in mind:

- The lamps need very high voltages to ignite, around 15,000 volts.
- The lamps produce a lot of light and UV radiation. UV light can damage your retinas. After the light leaves the lamps and passes through the optical engine, there is no more UV.
- Static electricity can damage sensitive electronic components. Always use a grounding strap when handling components such as the control board or optical engine.
- There are no electrical interlocks on the display. Opening the screen or removing the rear panel does not turn off the high voltage to the lamps.

**Note:** The plug on the power cord serves as the disconnect for this product. All parts are replaced at the module level. It is highly recommended that part replacement is performed by a Qualified Service Technician.

This display was designed with safety in mind. However, if you don't heed the safety warnings and cautions, you could get hurt. The safety warnings are on stickers in various places in and on the display. They are reproduced on these pages so you can see them all at once.



**WARNING** TURN OFF POWER SWITCH BEFORE OPENING COVER. HOT LAMP INSIDE. ALLOW AT LEAST 15 MINUTES FOR LAMP TO COOL BEFORE REPLACING. RISK OF EXPLOSION. HANDLE BULB WITH CARE. SEE USER'S MANUAL FOR LAMP REPLACEMENT.

**AVERTISSEMENT** COUPER L'ALIMENTATION ELECTRIQUE AVANT OUVERTURE DE LA FACE AVANT. ATTENTION, LA LAMPE EST CHAUDE. LAISSER REFROIDIR AU MOINS 15 MINUTES AVANT SON REMPLACEMENT. RISQUE D'EXPLOSION. MANIPULER L'AMPOULE AVEC PRECAUTION. SE REFERER AU MANUEL DE L'UTILISATEUR POUR TOUT REMPLACEMENT DE LA LAMPE.

**WARNUNG** DEM ÖFFNEN DES DENKELS-STROM ABSCHALTEN. VORSICHT-EXPLOSIONS GEFAHR-LAMPE IST HEIß. WARTE WENIGSTENS 15 MIN. FÜR DIE LAMPE ZUM ABKÜHLEN. VORSICHT MIT DER LAMPE BEIM HANTIEREN. FOLGE ANWEISUNGEN FÜR DEN LAMPEN WECHSEL IM REPARATUR MANUAL.

334-0078-00

 **WARNING**

High intensity light.  
Do not look into the  
projection lens while  
unit is on.

 **WARNING**

 Possible UV Exposure  
Use protective eye  
wear while operating  
with screen removed.

334-0077-00

 **WARNING**

Hazardous voltage inside.  
Can shock, burn or cause  
death.



Disconnect power cord before  
servicing this unit.  
Refer to service manual for  
details.

No user serviceable parts inside.  
Refer all service to qualified  
serviceman.

 **ATTENTION**

Présence de hautes tensions  
à l'intérieur.  
Risques d'électrocution, de  
brûlure et de mort.



Débranchez le câble d'alimentation  
secteur avant toute action de  
maintenance.  
Consultez le manuel utilisateur pour  
plus d'informations.  
N'ouvrez pas le châssis.  
Seul le personnel qualifié peut  
effectuer la maintenance de  
cet appareil.

h 334-0198-00



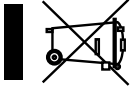
Lamp(s) inside this product contain mercury. This product may contain other electronic waste that can be hazardous if not disposed of properly. Recycle or dispose in accordance with local, state, or federal Laws. For more information, contact the Electronic Industries Alliance at [www.eiae.org](http://www.eiae.org). For lamp specific disposal information, check [www.lamprecycle.org](http://www.lamprecycle.org).

# European Union Disposal Information

## English

- Disposal of old Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collection programs)

This symbol found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources.

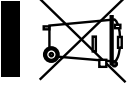


This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

## Español

- Destino de equipos eléctricos y electrónicos (aplicable a la Unión Europea y a otros países europeos con programas de reciclaje independientes)

La presencia de este símbolo en el propio producto o en su material de embalaje, indica que no se debe tratar como residuo doméstico cuando desee deshacerse de él. En su lugar, debe entregarlo en el punto limpio correspondiente de reciclaje de equipos eléctricos y electrónicos. Asegurándose de que este producto se desecha de forma correcta, ayudará a evitar posibles consecuencias negativas para la conservación del medioambiente y la salud humana, consecuencias que podrían darse si se desecha del producto de forma inadecuada. El reciclado de materiales ayuda a conservar los recursos naturales.

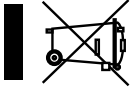


Este símbolo solamente es válido en la Unión Europea. Si desea deshacerse de este producto, póngase en contacto con las autoridades locales o con su distribuidor y pida información sobre el método de disposición adecuado.

## Français

- Mise au rebut des équipements électriques et électroniques usagés (Valable dans l'ensemble de l'Union Européenne ainsi que dans les pays européens disposant de programmes distincts de collecte des déchets)

Ce symbole appliqué sur votre produit ou sur son emballage indique que ce produit ne doit pas être traité comme un déchet ménager lorsque vous voulez le mettre au rebut. Il doit au contraire être remis à un site de collecte agréé pour le recyclage des équipements électriques et électroniques. En veillant à ce que ce produit soit mis au rebut de façon adéquate, vous contribuerez à prévenir les conséquences potentiellement négatives sur l'environnement et sur la santé humaine qui risqueraient de se produire en cas de mise au rebut inappropriée de ce produit. Le recyclage des matériaux contribuera également à économiser les ressources naturelles.

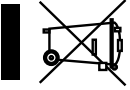


Ce symbole n'est valable que dans l'Union Européenne. Si vous souhaitez mettre ce produit au rebut, veuillez prendre contact avec les autorités locales ou avec votre revendeur et renseignez-vous sur la méthode de mise au rebut correcte.

## Italiano

- Smaltimento delle attrezzature elettriche ed elettroniche usate (applicabile in tutta la Comunità Europea ed altri Paesi Europei che applicano programmi di raccolta differenziata)

Il simbolo trovato sul prodotto, o sulla sua confezione, indica che il prodotto non può essere trattato come i domestici quando è il momento di smaltirlo. Al contrario, deve essere consegnato ad un centro di raccolta specializzato nel riciclaggio di attrezzature elettriche ed elettroniche. Assicurando che il corretto smaltimento di questo prodotto, si aiuterà a prevenire potenziali conseguenze negative sull'ambiente e sulla salute umana, che possono essere provocate da uno scorretto smaltimento di questa attrezzatura. I materiali riciclati aiuteranno a conservare le risorse naturali.

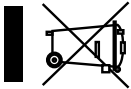


Questo simbolo è valido solo nell'Unione Europea. Per smaltire questo prodotto, mettersi in contatto con le autorità locali - o con il rivenditore - e chiedere informazioni sul corretto metodo di smaltimento.

## Deutsch

- Entsorgung von elektrischen & elektronischen Altgeräten (gültend für die europäische Gemeinschaft und andere europäische Länder mit separaten Sammelprogrammen)

Dieses Symbol, zu finden auf Ihrem Produkt oder dessen Verpackung, macht Sie darauf aufmerksam, dass dieses Produkt bei der Entsorgung nicht als Hausmüll behandelt werden darf. Statt dessen sollte es an eine Sammelstelle zum Recycling von elektrischen und elektronischen Altgeräten gegeben werden. Helfen Sie mit, potenziell schädliche Einflüsse auf Umwelt und Gesundheit, die durch eine unsachgemäße Entsorgung dieses Produktes entstehen können, zu vermeiden und entsorgen Sie dieses Produkt ordnungsgemäß. Recycling hilft, natürliche Rohstoffe einzusparen.

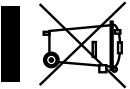


Dieses Symbol ist nur innerhalb der europäischen Gemeinschaft gültig. Wenn Sie dieses Produkt entsorgen möchten, wenden Sie sich bitte an Ihre örtliche Behörde und fragen Sie nach der ordnungsgemäßen Entsorgungsmethode.

## Nederlands

- Vervuilen van oude elektrische en elektronische apparatuur (toepas- selijk in de volledige Europese Unie en andere Europese landen met afzonderlijke programma's voor afvalverzameling)

Dit symbool dat op het product of zijn verpakking is aangebracht, geeft aan dat dit product niet mag worden behandeld als huishoudelijk afval als u het wilt wegwerpen. U moet het afgeven bij een specifiek verzamelpunt voor de recycling van elektrische en elektronische apparatuur. Door te garan- deren dat u dit product op de correcte manier wegwierpt, helpt u potentiële negatieve gevolgen voor het milieu en de menselijke gezondheid, die zouden kunnen worden veroorzaakt door een onrechtmatig wegwerpen van het product, te voorkomen. De recycling van materialen helpt het behoud van natuurlijke bronnen.



Dit symbool is alleen geldig in de Europese Unie. Als u dit product wenst weg te gooien, dient u contact op te nemen met uw lokale instanties voor details over de gepaste methode voor afvalverwijdering.

## Português

- Eliminação de equipamentos eléctricos e electrónicos usados (aplicável na União Europeia e noutros países europeus com programas próprios de recolha destes equipamentos)

Este símbolo, colocado no produto ou na respectiva embalagem, indica que o produto não deve ser tratado como lixo doméstico aquando da sua eliminação. Em vez disso, deve ser entregue num ponto de recolha de equipamentos eléctricos e electrónicos para posterior reciclagem. Ao garantir a correcta eliminação deste produto, estará a evitar consequências potencialmente negativas tanto para o ambiente como para a saúde humana. A reciclagem de materiais ajuda a preservar os recursos naturais.

## Polski

- Używanie zużytego sprzętu elektrycznego i elektronicznego (Dobrych krajów Unii Europejskiej i innych krajów europejskich z oddzielnymi programami zbiórki odpadów)

Oznaczenie tego symbolu na produkcie lub na opakowaniu z produktem oznacza, że tego produktu nie można wyrzucać razem z odpadkami domowymi. Należy go przekazać do punktu zbiórki w celu poddania recyklingowi produktów elektrycznych i elektronicznych. Usunięcie tego produktu w prawidłowy sposób, pomoże w zabezpieczeniu przed negatywnym wpływem odpadów na środowisko i zdrowie ludzi, powodowanym przez niewłaściwe użycie produktu. Przetwarzanie materiałów pomaga w zachowaniu zasobów naturalnych.

## Svenska

- Avfall av förbrukat elektrisk och elektronisk utrustning (Tillämpbart i hela Europeiska unionen och andra europeiska länder med separata samlingsprogram)

Den här symbolen som finns på din produkt eller på dess förpackning påvisar att produkten inte ska behandlas som hushållsavfall när du vill slänga bort den. Istället ska den lämnas över till en lämplig uppsamlingspunkt för återvinning av elektriska och elektroniska utrustningar. Genom att tillförsäkra att den här produkten återvinns på ett riktigt sätt hjälper du till med att förhindra möjliga negativa konsekvenser för miljön och mänsklig hälsa. Det kan anses orsakas på grund av olämplig sophantering av den här produkten. Återvinning av material kommer att hjälpa till att bevara naturtillgångar.

## Suomi

- Vanhojen sähkö- ja elektroniikkalaitteiden hävittäminen (Soveltuvaa kaikilla Euroopan unionin alueilla, sekä muissa Euroopan maissa, joilla on erilliset keräysohjelmat)

Jos tuoteessa tai sen pakkauksessa on tämä symboli, sitä ei pidä hävittäässä kotitalousjätteenä, vaan se kuuluu kierrätettävään sähkö- ja elektroniikkalaitteiden kierrätysjärjestelmään. Varmistaaksesi, että tämä tuote hävitetään asianmukaisella tavalla autat estämään mahdollisia ympäristö- ja ihmisille koituvia negatiivisia seurauksia, jolla sen väärinlaitteen hävittäminen voi aiheuttaa. Materiaalien kierrättäminen auttaa säilyttämään luonnonvarjoja.



Den här symbolen är endast giltig inom den Europeiska unionen. Om du vill slänga bort den här produkten ska du kontakta lokala myndigheter eller återförsäljare, och fråga efter lämplig avfallsmetod.



Tämä symboli on voimassa ainoastaan Euroopan unionin alueella. Jos haluat hävittää tämän tuotteen, ota yhteyttä paikallisiin viranomaisiin tai jälleenmyyjään ja tiedustele asianmukaisia hävittämistapoja.



## RoHS Compliance

The RoHS directive restricts the use of certain hazardous substances in electrical and electronic equipment in the European Union. The c50RP/RX, c67RP/RX is RoHS compliant.

# Troubleshooting c50/c67R

## General Troubleshooting Concepts and Procedures

All troubleshooting procedures require you to gather information, make assumptions, and then test those assumptions until you arrive at the problem and can solve it.

Possible solutions to the most common problems are explained below. For more involved problems and solutions, [see "c50/c67R Troubleshooting Procedures" on page 11.](#)

### *If your screen shows black or a test pattern*

| Do This                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Result                                                               | Explanation / Further Action                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1. On the remote, press MONITOR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No menu appears and a sequence of flashing red or amber LEDs appear. | <p>The lamps may not be lit. On the remote, press ON.</p> <p>Read the LED codes. <a href="#">See "On-Screen Code Details and Actions to Take" on page 47.</a></p> <p>If you know the source is not black, go to <a href="#">See "Picture is Visible, But ..." on page 18.</a></p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | A menu appears.                                                      | <p>Check if the "Curtain or Test Pattern is displayed" message (in red) appears on the menu. If it does not, <a href="#">go to Step 3.</a> If the message does appear, <a href="#">go to Step 2.</a></p>                                                                          |
| <div> <div>Unit Status</div> <div>PLANAR</div> <div> <div>c50RX1024 x 768</div> <div>010-0983Rev 00</div> <div>Curtain or Test Pattern is displayed</div> <div> <div>Last Fault: No Fault</div> <div>00000:00</div> </div> <div> <div>Fans</div> <div> <div>PS: On</div> <div>Lamp: On</div> <div>DMD: On</div> <div>Intake: On</div> </div> <div> <div>Temperatures</div> <div> <div>Board: 35 °C</div> <div>SIB: 28 °C</div> <div>Lamp 100 W</div> <div>Front: Off</div> <div>Rear: On</div> </div> </div> </div> </div> </div> |                                                                      |                                                                                                                                                                                                                                                                                   |

***If your screen shows black or a test pattern (Continued)***

| Do This                                                                                            | Result                                 | Explanation / Further Action                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 2. On the remote, press CURTAIN once. If the message does not disappear, press CURTAIN again. | The message has not disappeared.       | <a href="#">See "c50/c67R doesn't respond to remote control" on page 8.</a>                                                                                                                                                                                                                                                                                                        |
|                                                                                                    | The message has disappeared.           | If the correct source does not appear, <a href="#">go to Step 3.</a>                                                                                                                                                                                                                                                                                                               |
| Step 3. On the remote, press MENU until the MAIN MENU appears.                                     | The "source absent" pane is visible.   | <p>Make sure the correct source is selected by pressing SOURCE. If necessary, change to a different source.</p> <p>Make sure the source is on.</p> <p>Make sure the cable between the source and the display is correctly connected at both ends.</p> <p>If the screen is still a solid color, <a href="#">see "Accessing Planar's Technical Support Website" on page 173.</a></p> |
|                                                                                                    | The source absent pane is not visible. | The source is displaying a solid color or a test pattern.                                                                                                                                                                                                                                                                                                                          |
| Step 4. Ensure power cable is connected and power switch is on.                                    |                                        | Reconnect cable and turn on unit. If none of the previous steps have resolved the problem, <a href="#">see "Accessing Planar's Technical Support Website" on page 173.</a>                                                                                                                                                                                                         |

***c50/c67R doesn't respond to remote control***

| Possible Cause                                                      | Possible Resolution                                                   |
|---------------------------------------------------------------------|-----------------------------------------------------------------------|
| Power is not on.                                                    | Confirm that the power cable is connected and the power switch is on. |
| Remote batteries are dead or improperly installed.                  | Replace or reinstall batteries.                                       |
| Your installer or service provider has disabled the remote control. | Contact your installer or service provider.                           |
| IR response disabled via RS232.                                     | Re-enable IR response using RS232 commands.                           |
| IR/LED board is disconnected.                                       | Reconnect IR/LED board.                                               |

## Lamps won't light

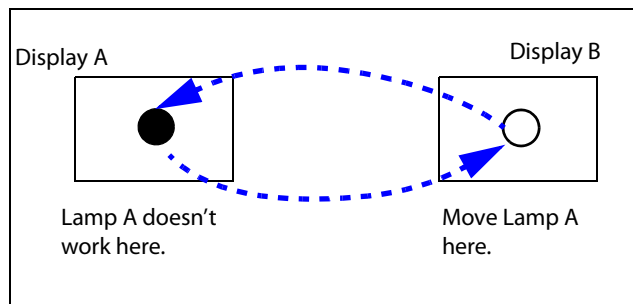
| Possible Cause                                                                                                                                                                                                                                                                                              | Possible Resolution                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A fan has failed                                                                                                                                                                                                                                                                                            | Look at the LEDs on the control board for a red LED in the Fan section. The lamp and DMD fans must operate for the lamps to light. <a href="#">See "Control Board LEDs" on page 63.</a> |
| To test a lamp, remove it and exchange it for a lamp you know is good from another c50/c67R. <a href="#">See "Swapping Lamps and Ballasts" on page 9.</a><br>If the "good" lamp does not work in the "bad" location, or the "bad" lamp works in another location, the problem may be a failed lamp ballast. |                                                                                                                                                                                         |

## Swapping Lamps and Ballasts

Some lamp and ballast problems defy diagnostics and require you to actually try other parts to determine the cause of failure.

**WARNING!** Always turn off the AC power and remove the power cord before working inside the display and before removing a lamp.

- If you have AC and ballast (350V) power, try swapping the lamp into a display where the lamp is good.



- If Lamp A works in Display B, put it back in Display A. Lamp A is OK.
- If Lamp A does not work in Display B, the problem is Lamp A. Put a new lamp in Display A.
- If the lamp is OK, try swapping the ballast in the same way. The lamp ballast provides power to the lamp. It is an electronic part, and all electronic parts are subject to eventual failure.
- Fan failed. All fans are sensed, which means the control board knows whether or not they are running. If they don't run when they should, the control board turns off the lamp and prevents it from striking (turning on) again.

## Swapping Other Parts

Exchanging parts from one display to another is an effective way to find a problem. If the problem follows the part to the new unit, that part was at fault.

If the problem stays in the first unit, you haven't found the problem yet, but you have learned something: the part you moved was not the problem. Put it back in the original unit and try something else.

You can swap control boards or fans in the same way to see if one is bad.

When you swap control boards for testing, remember to put them back in their original locations. Otherwise you may have to do setup procedures again, such as input level adjustment and color balance, because these values are stored in the control board.

When you swap fans, always exchange fans of the same size.

## Why Not Use a New Part Out of the Box?

It may seem like a good idea to take a new part out of the box and substitute it for a suspected part in the display. However, there is a very small chance that the part in the box doesn't work. If you test a part by putting in a known good part, you get better information.

## EDID Issues

One problem with EDID is that displays are capable of many more resolutions (video timings) than can be stored in a data block of only 128 bytes. The displays are capable of hundreds of resolutions, but the EDID block has room to store only dozens.

This means that some video cards will not put out certain resolutions, even though the connected display is capable of handling them. One consequence of this problem is that some graphics cards can get confused by the unit's EDID and not display anything at all. If this occurs, you can disable the EDID to see if that will cause the graphics card to display a default resolution. To disable the EDID, uncheck the (EDID) PLUG AND PLAY box in the MISCELLANEOUS menu (MAIN MENU > ADVANCED OPTIONS > MISCELLANEOUS OPTIONS).

| Miscellaneous                       |                            | PLANAR      |
|-------------------------------------|----------------------------|-------------|
| <input type="checkbox"/>            | Beeper                     |             |
| <input checked="" type="checkbox"/> | Curtain Pattern            | Logo        |
| <input checked="" type="checkbox"/> | Auto Codes                 |             |
| <input type="checkbox"/>            | (EDID) Plug and Play       |             |
|                                     | EDID Detailed Timing 1     | 1920 x 1080 |
|                                     | EDID Diagonal              |             |
|                                     | Preferred Source Detection | 16 x 9      |
| <input checked="" type="checkbox"/> | Allow Frame Lock           |             |

After you have unchecked (EDID) PLUG AND PLAY, reboot the source computer.

**Note:** If you use a long-line distribution system (over 50 feet), EDID may not function correctly or at all.

## c50/c67R Troubleshooting Procedures

Click on the symptom of the problem or turn to the corresponding page number.

- 1 The screen is black. [Go to page 12.](#)
- 2 Red or amber lights flashing on the screen. [Go to page 47.](#)
- 3 The screen is a solid color. [Go to page 16.](#)
- 4 The lamp will light, but it won't stay on. [Go to page 17.](#)
- 5 The picture is visible, but there is something wrong with it. [Go to page 18.](#)
- 6 RS232 or RS485 communication doesn't work. [Go to page 29.](#)
- 7 The c50/c67R doesn't respond to the remote. [Go to page 38.](#)
- 8 There is dirt or a smudge in the picture. [Go to page 71.](#)
- 9 Auto Color Balance is not performing properly. [Go to page 40.](#)

## Screen is Black

Possible cause: Lamp is off.

What to do: From about 6 feet (2m) away, aim the remote at the screen and press the MONITOR button.

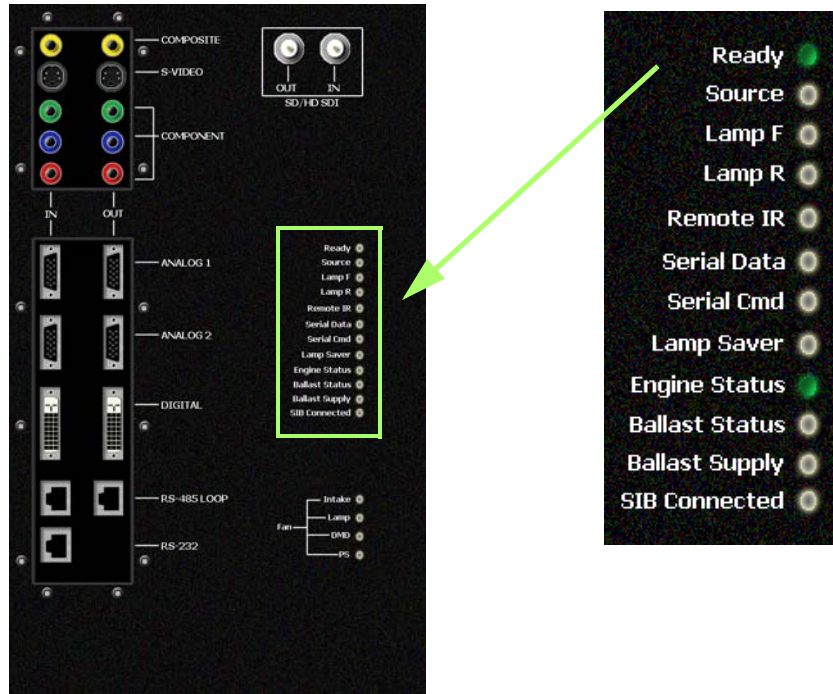
- 1** Do you see a menu?
  - If yes, the lamp is lit. [See "Screen is Solid Color" on page 16.](#)
  - If no, go to step **2**.
- 2** Do you see red and/or amber lights on the screen? Press the MONITOR button.
  - If yes, [see "On-Screen Code Details and Actions to Take" on page 47.](#)
  - If no, go to step **3**.
- 3** Has the remote been disabled via RS232 commands?
  - If yes, re-enable IR response using RS232 commands.
  - If no, go to the next possible cause.

Possible cause: Unit is not powered on.

What to do: There are a number of possible causes. First make sure the power cord is plugged in and the AC switch is turned on. If the unit is still not powered on, complete the following steps to find a solution.

- 1** Open the screen, swing the control board door in and look at the control board. Or view the control board from the rear.  
From the **Front**: [Task 1 Gain Access: Remove Screen on page 67.](#)

- 2 Turn off the main AC power switch, wait 10 seconds and then turn it back on. As the unit powers up, the Ready LED on the control board should turn green. After that, the Ballast Status LED may flash amber and then should turn green. Did the Ready LED turn green?
  - If yes, go to Possible cause: [Cables are not connected.](#)
  - If no, go to step 3.



- 3 Check the power supply connector on the bottom of the control board. Make sure it is plugged in securely. If it is *not* connected, turn off the AC power switch, re-connect it and turn on the AC power switch. Did the Ready LED on the control board turn green?
  - If yes, the problem is likely solved; proceed as usual by turning on the lamp(s), etc.
  - If no, go to step 4.
- 4 When you cycled power, did you see a change in the brightness or color of any LED?
  - If yes, go to Possible cause: [The control board has failed.](#)
  - If no, go to step 5.
- 5 Plug this power cord into another display. If the other unit doesn't work, check the power cord for one of the following:
  - Is the cord frayed or damaged?
  - Is the AC outlet functioning? Test by plugging something else in there.
- 6 Swap this power supply module with a known good power supply module from another display.

From the **Front**: [Task 1 Gain Access: Remove Screen on page 67](#) and [Task 1.5.2 Remove Power Supply Module on page 90](#).

From the **Rear**: [Task 3 Gain Access: Remove Rear Panel on page 134](#) and [Task 3.1.2 Remove Power Supply Module on page 142](#).

- 7** Does this unit now work?
  - If yes, the problem is likely solved; proceed as usual by turning on the lamp(s), etc.
  - If no, go to the next possible cause.

Possible cause: Cables are not connected.

What to do: Complete the following steps.

- 1** If the Ballast Status LED is not green, check the connection from the power supply to the SIB. If it is correctly plugged in, there should be several small green LEDs lit on the SIB.
- 2** Disconnect and then reconnect the DVI cable from the control board to the SIB at both ends.
- 3** Disconnect and then reconnect the power cable at the engine.
- 4** Disconnect and then reconnect the DVI cable from the SIB to the engine at both ends.
- 5** Check the power cable from the SIB to the engine at both ends. If it is correctly plugged in, there should be amber light visible through the grill near the DVI connector. If there is ambient light, it will be difficult to see.
- 6** Does this unit now work?
  - If yes, the problem is likely solved; proceed as usual by turning on the lamp(s), etc.
  - If no, go to the next possible cause.

Possible cause: The control board has failed.

What to do: Swap this control board with a known good control board from another display. If *this* display now works but the other one doesn't, the problem is the control board.

From the **Front**: [Task 1.3 Remove/Replace Control Board on page 74](#).

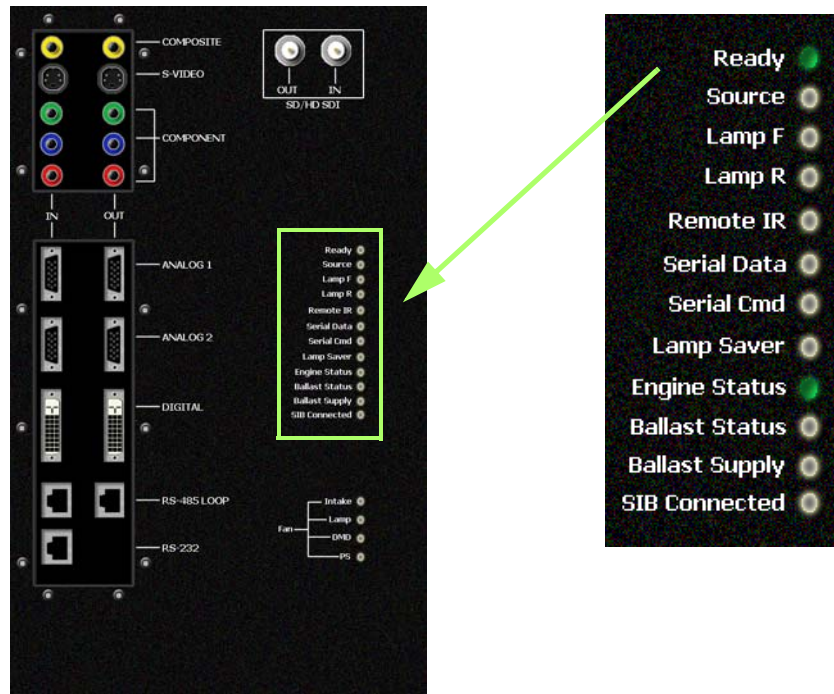
From the **Rear**: [Task 1 Remove Control Board on page 127](#) and [Task 1.2 Replace the Control Board on page 131](#).

- 1** It's possible that the control board appears to have power but the firmware is not working correctly. If this is likely, reload the firmware into the control board. [See "Accessing Planar's Technical Support Website" on page 173](#).
- 2** If this does not work, order a new control board.

Possible cause: IR/LED board has failed, is covered, disabled or disconnected.

What to do: From the **Front**: Open the screen, swing the control board door in and look at the control board. Or view the control board from the rear. [Task 1 Gain Access: Remove Screen on page 67](#).

- 1 Aim your remote directly at the IR/LED board and press MONITOR. Does the Remote IR LED on the control board flicker briefly?
  - If yes, red and amber flashing lights on the IR/LED board should be giving you some indication as to why the lamp won't light. ([See "On-Screen Code Details and Actions to Take" on page 47.](#)) If neither of these lights are lit, contact the Technical Support Department. ([See "Accessing Planar's Technical Support Website" on page 173.](#))
  - If no, go to step 2.



- 2 Verify the remote works with other units.
  - If yes, go to step 3.
  - If no, replace the remote batteries. ([See "c50/c67R doesn't respond to remote control" on page 8.](#))
- 3 Check the cable between the SIB and the IR/LED board and the DVI cable from the control board to the SIB. If the cables are OK, replace the IR/LED board.
 

From the **Front**: [Task 1.6 Remove/Replace IR/LED Board on page 107.](#)

From the **Rear**: [Task 3 Gain Access: Remove Rear Panel on page 134](#) and [Task 3.1.8 Remove/Replace IR/LED Board on page 159.](#)

[Back to the Troubleshooting List on page 11.](#)

## Screen is Solid Color

Discussion: You know the lamp is lit. The screen is a solid color for one of these reasons.

Possible cause: A test pattern or curtain is displayed.

What to do: Press the MONITOR button on the remote. The UNIT STATUS menu opens. If the message "Curtain or Test Pattern is displayed" (in red) appears on the menu, press the CURTAIN button. If the message is still visible on the menu, press CURTAIN again.

| Unit Status                          |            | PLANAR       |
|--------------------------------------|------------|--------------|
| c50RX                                | 1024 x 768 |              |
| 010-0983                             | Rev 00     |              |
| Curtain or Test Pattern is displayed |            |              |
| Last Fault: No Fault                 |            | 00000:00     |
| Fans                                 |            | Temperatures |
| PS:                                  | On         | Board: 35 °C |
| Lamp:                                | On         | SIB: 28 °C   |
| DMD:                                 | On         | Lamp 100 W   |
| Intake:                              | On         | Front: Off   |
|                                      |            | Rear: On     |

Possible cause: The source itself is producing the solid color.

What to do: The problem is not in the c50/c67R. Check the source.

[Back to the Troubleshooting List on page 11.](#)

## Lamp Lights, But Will Not Stay Lit

Possible cause: The lamp can no longer maintain an arc between its electrodes.

What to do: Replace the lamp with a known good lamp, one from another display that works.

From the **Front**: See [Task 1.5.1 Remove/Replace Lamp on page 84](#).

From the **Rear**: See [Task 3.1.1 Remove/Replace Lamp on page 137](#).

Possible cause: The ballast is not working correctly.

What to do: Replace the lamp ballast with a known good ballast, one from another display that works.

From the **Front**: See [Task 1.5.4 Remove the Lamp Ballast on page 93](#).

From the **Rear**: See [Task 3.1.4 Remove the Lamp Ballast on page 145](#).

Discussion: This is a little more difficult than changing the lamp, but still relatively easy.

Possible cause: One of the internal DVI cables is not fully connected.

What to do: Check both internal DVI cables (from the control board to the SIB and from the SIB to the engine). Sometimes the DVI cables are improperly plugged in, so some pins are connected and others are not.

[Back to the Troubleshooting List on page 11.](#)

## Picture is Visible, But ....

- a** ... it is too large or too small. [Go to page 19.](#)
- b** ... it has streaks. [Go to page 22.](#)
- c** ...it has a green edge on one side. [Go to page 23.](#)
- d** ...it is noisy. [Go to page 24.](#)
- e** ... the colors are wrong. [Go to page 25.](#)
- f** ... the display colors don't match other displays. [Go to page 26.](#)

[Back to the Troubleshooting List on page 11.](#)

## Picture is Too Large or Too Small

Possible cause: The optical engine is not properly aligned.

What to do: Open the ENGINE ALIGNMENT menu (MAIN MENU > ADVANCED OPTIONS > ENGINE ALIGNMENT) and turn on the GRID test pattern. Verify that the grid fills out to the edges of the screen. If it doesn't, see the Installation & Configuration Guide, which has a complete description of the engine alignment process in the section called "Engine Alignment."

Possible cause: The source itself has a colored or black edge.

What to do: Check the source picture.

Possible cause: The preferred source detection is not correct. (This could only be the cause if the source is analog.)

What to do: Make sure the PREFERRED SOURCE DETECTION line matches the aspect ratio of the source computer. Compute the aspect ratio of the source from its resolution and then check it with the PREFERRED SOURCE DETECTION line in the MISCELLANEOUS menu (MAIN MENU > ADVANCED OPTIONS > MISCELLANEOUS). For example, if the incoming source is 1024 x 768, the PREFERRED SOURCE DETECTION line should be set to 4 x 3. If the incoming source is 1368 x 768, the PREFERRED SOURCE DETECTION line should be set to 16 x 9.

| Miscellaneous                       |                            | PLANAR      |
|-------------------------------------|----------------------------|-------------|
| <input type="checkbox"/>            | Beeper                     |             |
| <input checked="" type="checkbox"/> | Curtain Pattern            | Logo        |
| <input checked="" type="checkbox"/> | Auto Codes                 |             |
| <input type="checkbox"/>            | (EDID) Plug and Play       |             |
|                                     | EDID Detailed Timing 1     | 1920 x 1080 |
|                                     | EDID Diagonal              |             |
|                                     | Preferred Source Detection | 16 x 9      |
| <input checked="" type="checkbox"/> | Allow Frame Lock           |             |

What to do: The picture is not the same aspect ratio as the wall or the unit. The edge color is determined by the border color in this menu.

What to do: On the remote, press WALL to open the ASPECT RATIO & WALL menu.



| Aspect Ratio & Wall                 |              | PLANAR |
|-------------------------------------|--------------|--------|
| <input checked="" type="checkbox"/> | Scale Mode   | Crop ▶ |
|                                     | Justify      | Center |
|                                     | Overscan     | 0%     |
|                                     | Border Color | Black  |
|                                     | Wall Width   | 1      |
|                                     | Wall Height  | 1      |
|                                     | Unit Column  | 1      |
|                                     | Unit Row     | 1      |
| <input type="checkbox"/>            | Wall Mode    |        |

If the aspect ratio of the source picture is not the same as the aspect ratio of the display or of the entire wall (when using Big Picture), then either:

**a** some edge of the picture will be cropped (chopped off)

**b** the extra area *not* filled with picture will be filled with a background color

Verify that the SCALE MODE is correct and that OVERSCAN is set to the correct percentage. For detailed information about this menu, see the Installation & Configuration Guide.

Possible cause: Picture is not positioned correctly.

What to do: Use the Position control. On the remote, press SIZE/POS.



| Picture Position             |     | PLANAR |
|------------------------------|-----|--------|
| Use arrow keys to move image |     |        |
| ↕                            |     |        |
| Horizontal Position          | 168 |        |
| Vertical Position            | 19  |        |

| Picture Position             |     | PLANAR |
|------------------------------|-----|--------|
| Use arrow keys to move image |     |        |
| ↕                            |     |        |
| Horizontal Position          | -0- |        |
| Vertical Position            | -0- |        |

**Note:** If both positions are at zero, the source image is DVI and will have to be adjusted if the DVI source is from a previous unit with an Analog IN.

Use the up/down arrow keys to move the VERTICAL POSITION of the image and the left/right arrows to move the HORIZONTAL POSITION of the image.

Possible cause: This could be a zoom adjustment, particularly if you are using Planar's Big Picture™.

What to do: Select MAIN MENU > SIZE & POSITION > RESET ALL WINDOWS TO DEFAULT.

| Main Menu           | PLANAR | Size & Position                | PLANAR |
|---------------------|--------|--------------------------------|--------|
| Picture             | ▶      | Picture Position               | ▶      |
| Size & Position     | ▶      | Zoom Window Top & Left         | ▶      |
| Aspect Ratio & Wall | ▶      | Zoom Window Bottom & Right     | ▶      |
| Memory              | ▶      | Viewport Window Top & Left     | ▶      |
| Diagnostics         | ▶      | Viewport Window Bottom & Right | ▶      |
| Advanced Options    | ▶      | Reset All Windows to Default   |        |
| Program Information | ▶      |                                |        |

[Back to the "Picture is visible" list.](#)

[Back to the Troubleshooting List on page 11.](#)

## Analog Data Picture Has Streaks

**Possible cause:** Horizontal streaks are caused by poorly adjusted Phase. Vertical streaks are caused by poorly adjusted Frequency.

**Discussion:** This is most easily seen in vertical lines or in text (black text on white background), or in anything that has fine detail and high contrast.

**What to do:** Adjust the Phase or Frequency control in the PICTURE menu.

| Picture                                                                           |                                   | PLANAR                                                                                |             |
|-----------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------|-------------|
|  | Source                            | Analog 1 ►                                                                            |             |
|                                                                                   | Sync Type                         | Separate H&V                                                                          |             |
|                                                                                   | Vertical Frequency (frame locked) | 60Hz                                                                                  |             |
|                                                                                   | Horizontal Frequency              | 50.00kHz                                                                              |             |
|                                                                                   | Pixel Frequency                   | 80.10MHz                                                                              |             |
|                                                                                   | Mode ID: 31                       | HPer: 3178                                                                            | VLines: 525 |
|  | Horizontal Resolution             | 1366                                                                                  |             |
|  | Vertical Resolution               | 768                                                                                   |             |
|  | Frequency                         | -  + | 1602        |
|  | Phase                             | -  + | 22.5°       |
|  | Sharpness                         | 4                                                                                     |             |
|                                                                                   | Input Levels                      | ►                                                                                     |             |

**Note:** If you are adjusting Frequency and Phase, you must adjust Frequency first.

- a** If possible, use a checkerboard pattern from the picture source.
- b** If the source is a computer, use the Windows™ Paint program.
- c** Go to your Start menu and select Programs > Accessories > Paint.
- d** Select Image and then Attributes.
- e** Select the Black and white radio button and set the resolution to the native resolution of the c50/c67R. Click OK to continue.
- f** Choose the ninth (9th) color chip from the left on the bottom row of “color” chips (they all look white or gray or black).
- g** Choose the paint bucket and dump this pattern in the Paint window.
- h** Adjust the Phase and/or Frequency until the streaks disappear.

**Note:** Save each source to a memory slot. See the Installation & Configuration Guide for more information.

[Back to the “Picture is visible” list.](#)

[Back to the Troubleshooting List on page 11.](#)

## Picture Has a Green Edge On One Side

Possible cause: If you have a dual-lamp system, the lamp is misaligned.

Discussion: The picture will show a green edge on one side.

What to do: Make sure the alignment tabs on the lamp in position are seated in the slots. It is possible to tighten the thumb screws and still have the tabs out of position.



## Picture is Noisy

Possible cause: Poorly adjusted Phase or Frequency.

What to do: [See "Analog Data Picture Has Streaks" on page 22.](#)

Possible cause: Power tools are being used on the same AC circuit as the displays, which creates Electromagnetic Interference (EMI).

What to do: Make sure you have a dedicated AC circuit for your displays.

Possible cause: Loop-thru is too long.

Discussion: Analog loop-thru is sometimes good for as many as nine displays. Digital (DVI) loop-thru is good for five or six. Beyond that, and sometimes even earlier, you may find noisy pictures.

What to do: Reduce the number of displays the picture must go through to get to the last one. One way is to use a distribution amplifier or switch box so that each display, or at least most of them, can be fed directly.

Another way is to combine analog and digital loop-thru. For instance, in a 4 x 4 wall, loop the analog picture vertically through the first column. Then loop the picture out of these along each row digitally. That way the furthest display is only the 7th in the chain, not the 16th.

Possible cause: Long cables from the picture source to the first display.

What to do: Use highest quality VGA or digital cables. Put an amplifier in the line.

[Back to the "Picture is visible" list.](#)

[Back to the Troubleshooting List on page 11.](#)

## Analog Data Picture Colors Are Wrong

**Possible cause:** Input levels are set incorrectly. If the source is analog, adjust the following: input levels and color balance.

**Discussion:** If input levels are wrong, the picture may appear washed out with weak colors and not “snap” to the blacks and whites. Or it may seem to have too much contrast, where many dark colors are compressed into black and many very light parts are all white.  
If the color balance is wrong, the colors or brightness of displays in a wall may be different from one to another display.

**What to do:** To adjust input levels for *analog* sources, you need a black picture and a white picture from the source computer.

**a** Show a black picture from the source. This must come from the computer source that will be used for the program. It does no good to use your laptop for this adjustment, then connect to a different computer for the program. Nor can you use the c50/c67R's black test pattern (Hint: Make a black screen from Windows Paint program, Start > Programs > Accessories > Paint).

**b** In the INPUT LEVELS menu, select AUTO BLACK LEVEL and press ENTER.

| Input Levels                                                                        |                           | PLANAR |     |      |
|-------------------------------------------------------------------------------------|---------------------------|--------|-----|------|
|    | Auto Black Level (offset) |        |     |      |
|   | Auto White Level (gain)   |        |     |      |
|                                                                                     | Center Point              | 64     | 124 | 99   |
|  | Black Level (offset)-All  | -      |     | + 79 |
|                                                                                     | Red                       | -      |     | + 89 |
|                                                                                     | Green                     | -      |     | + 67 |
|                                                                                     | Blue                      | -      |     | + 83 |
|  | White Level (gain)-All    | -      |     | + 99 |
|                                                                                     | Red                       | -      |     | + 99 |
|                                                                                     | Green                     | -      |     | + 99 |
|                                                                                     | Blue                      | -      |     | + 99 |

**Note:** Always adjust black levels first!

**c** Display a 100% white picture from the source.

**d** Select AUTO WHITE LEVEL and press ENTER.

The c50/c67R is now adjusted to the black and white levels of *this* computer using *this* video card. If you change computers or video output cards in the computer, you must do this again.

**Note:** Save each source to a memory slot. See the Installation & Configuration Guide for more information.

Adjusting color balance is a somewhat complicated procedure. See the “Adjusting Color Balance” section in the c50/c67R Installation & Configuration Guide.

## Display Color Does Not Match Other Displays

Possible cause: Units are not properly color balanced.

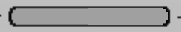
Discussion: **Color balancing** makes all the displays in a wall have the same colors. It does not achieve a particular hue or shade of white. When all the displays look the same for brightness and hue, the wall will look uniform, and viewers will focus their attention on the content.

What to do: If the display wall has the Auto Color Balance option, the easiest and fastest way to color balance is to use this option. Open the COLOR BALANCE menu, highlight AUTO COLOR BALANCE near the bottom of the menu, and press ENTER. (If you do not see AUTO COLOR BALANCE in the COLOR BALANCE menu, it means this wall does not have the ACB option.) All screens will go to primary colors. The auto balance process takes at least 40 seconds for a 2 x 2 wall and will take longer as the number of displays in the wall increases.

What to do: Make sure that the units are cabled together using the RS232/RS485 cables.

**Note:** You must have WallNet to use the Auto Color Balance option.

If you do not have the Auto Color Balance option, manually color balance the wall. Manual color balancing is an art; you will get better at it with practice. In this art, you must try to separate your perception of brightness, values and hue. Hue is the apparent color.

| Color Balance                                                                       |                                                                                                                                                                                                                                                                 | PLANAR                                                                              |       |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| Color Temperature                                                                   |                                                                                                                                                                                                                                                                 | Native                                                                              |       |
|  | White Balance - All                                                                                                                                                                                                                                             | (Clipboard)                                                                         |       |
| Red                                                                                 |  -  +  | 100                                                                                 | (100) |
| Green                                                                               |  -  +  | 100                                                                                 | (100) |
| Blue                                                                                |  -  +  | 100                                                                                 | (100) |
|  | Gray Balance - All                                                                                                                                                                                                                                              |                                                                                     |       |
| Red                                                                                 |  -  +  | 7                                                                                   | (7)   |
| Green                                                                               |  -  +  | 7                                                                                   | (7)   |
| Blue                                                                                |  -  +  | 7                                                                                   | (7)   |
|  | Test Pattern                                                                                                                                                                                                                                                    | Off                                                                                 |       |
|  | Hide Menu                                                                                                                                                                                                                                                       |                                                                                     |       |
|  | Copy to Clipboard                                                                                                                                                                                                                                               |                                                                                     |       |
|  | Recall From Clipboard                                                                                                                                                                                                                                           |                                                                                     |       |
|  | Reset to Defaults                                                                                                                                                                                                                                               |                                                                                     |       |
| Gamma                                                                               |                                                                                                                                                                                                                                                                 | Video                                                                               |       |
| White Boost                                                                         |                                                                                                                                                                                                                                                                 | Off                                                                                 |       |
| Auto Color Balance                                                                  |                                                                                                                                                                                                                                                                 |  |       |

**Caution:** If you are color blind even a little bit, do not perform this procedure.

- a** Turn on lamps one hour before performing a color balance.
- b** Open the COLOR BALANCE menu on all the displays.
- c** Turn off White Boost on all displays to make color balancing much easier.
- d** Set all displays to have the same settings for GAMMA.
- e** Click Reset on all displays so they show 100 for the white, red, green, and blue, and 7 for the grays.

### Initial White Adjustment for Brightness

- a** In the TEST PATTERN section of the COLOR BALANCE menu, select the WHITE pattern for all displays.
- b** Select the HIDE MENU item in the COLOR BALANCE menu, so you won't be distracted by the extra colors or adjust the wrong display.
- c** If the wall is wide, move around so you look at all the displays on axis. Evaluate the white screens. Look for the brightest display in the wall.  
Try to ignore color when choosing the brightest display, except: Your eyes and brain will interpret a bright bluish display to be brighter than a bright display that does not have a blue hue to it. If one display is bright and particularly blue, don't choose it as the brightest.
- d** Turn on the COLOR BALANCE menu again in the display you chose as the brightest by pressing the ENTER button.
- e** Use ALL in the WHITE section of the COLOR BALANCE menu to bring down the brightest display to the same level as the less bright ones, but do not take it down more than 5 or 6 steps. If it is still too bright, leave it for now.  
Don't try to match the brightness exactly, just get it closer. A better match will come later. As you adjust the brightness of white downward, the hue may change. Try to ignore the color and adjust for brightness only.
- f** If other displays are brighter, bring them down also. Again, do not adjust more than 5 or 6 steps.

### Initial White Adjustment for Hue

Now step back and turn your attention to hue only. For the darker displays, the ones that are still at 100 for red, green and blue, you will subtract colors to make them match the brighter displays in hue.

In your mind, or on a "map" of the wall for large walls, mark the displays that are too green, too red, too blue. If a display is too yellow, it is really has too much green and red, because green and red light sources mix to make yellow.

- a** Start with displays that need green subtracted. Reduce the green in these displays until they are closer in hue to the brighter displays.
- b** Look for the displays that need red subtracted, and adjust these.
- c** Finally, reduce the blue in any displays that need taken down. Move the blue as little as possible. Try not to move the blue more than 10 or 15 steps.

## Second White Adjustment for Brightness

- a** Reduce WHITE ALL for the brightest displays to match more closely the other displays for brightness.
- b** Repeat steps **a** through **c** of the ["Initial White Adjustment for Hue"](#) section as needed.

**Note:** Always adjust white levels first!

## Adjusting the Grays

- a** In the COLOR BALANCE menu, turn on the GRAY test pattern.
- b** Choose a display that has very little hue in its gray and call this the baseline. Adjust the brightness and hue of the other displays to this one.  
In the grays, your starting value is 7 and you can go up to 15 and down to 0. A good method is to change the three colors (always under gray) back and forth rapidly, stopping when they match. DO NOT evaluate the grays by looking at the primary colors in the TEST PATTERNS menu.

[Back to the "Picture is visible" list.](#)

[Back to the Troubleshooting List on page 11.](#)

## RS232 or RS485 Communication Doesn't Work

There are many small details involved in getting an entire wall or group of units to communicate over a serial link. By starting with simple commands you can ensure all these details are in place before moving on to more complex control. If you are setting up a wall or group of units for the first time, follow these steps for easy setup. If you have problems later, you can refer to the troubleshooting flowcharts starting on [page 32](#) and the diagnostic steps starting on [page 35](#) as necessary.

### Setup

- 1 Connect the RS232 cable from the computer to the RS232 IN connector of one unit. Connect the RS485 OUT connector of that unit, to the RS485 IN connector of the next unit and so on until all units are connected.
- 2 Choose a unique combination of group ID and unit ID for each unit and specify it in the SERIAL PORT SETTINGS menu.

| Main Menu           | PLANAR |
|---------------------|--------|
| Picture             | ▶      |
| Size & Position     | ▶      |
| Aspect Ratio & Wall | ▶      |
| Memory              | ▶      |
| Diagnostics         | ▶      |
| Advanced Options    | ▶      |
| Program Information | ▶      |

| Advanced Options      | PLANAR |
|-----------------------|--------|
| Engine Alignment      | ▶      |
| Color Balance         | ▶      |
| Miscellaneous Options | ▶      |
| Lamp Settings         | ▶      |
| Serial Port Settings  | ▶      |
| Auto Setup Options    | ▶      |
| Menu Options          | ▶      |
| Message in Picture    | ▶      |

| Serial Port Settings                     | PLANAR   |
|------------------------------------------|----------|
| Group ID                                 | 1        |
| Unit ID                                  | 1        |
| ASCII Response Type                      | Symbolic |
| ASCII Response Terminator                | CR       |
| Baud Rate                                | 19200    |
| <input type="checkbox"/> Terminate RS485 |          |

- 3 Set the baud rate of the host computer to 19200. If this is not possible, set the baud rate of each unit to match the baud rate of the host.

**Note:** There is no “handshake” between the host computer and the units. The baud rate must be set to the same value in each unit.

- 4 Open a program on the host that allows you to easily type commands. Serial Talk, available from our website, is one such program. Be sure you know how to send a carriage return character with whatever program you are using. All commands to the units must end in a carriage return (noted as [CR] in the examples below). In Serial Talk, send a carriage return by typing ^M (make sure the M is capitalized).
- 5 On each unit, press the MONITOR button twice to bring up the SERIAL PORT STATUS menu. The first unit should show RS232 and the remaining units should show RS485. If they are displaying the wrong information, press the + key until the information is correct.

| Serial Port Status <b>RS232</b> ▶                     |               | PLANAR     |
|-------------------------------------------------------|---------------|------------|
| <ENTER> to clear; +/- to select different serial port |               |            |
| Commands Received                                     |               | 34         |
| Replies Sent                                          |               | 34         |
| Last Packet Type                                      | Operation     |            |
| Last Packet Address                                   | Not Addressed |            |
| Bytes Received                                        |               | 921        |
| Bytes Sent                                            |               | 773        |
| UART Framing Errors                                   |               | 4          |
| UART Overflow Errors                                  |               | 0          |
| Group 0                                               | Unit: 0       | 19200 Baud |
| Most Recent                                           |               |            |
| ...115, 111, 108, 117, 105, 111, 110, 63, 13          |               |            |
| .st--1?.st--2?.st--3?.lcd.vertical-resolution?.       |               |            |

### Global Command

- 1 Send the command `op ** pattern=red [CR]`
- 2 Did all units in the wall put up a red test pattern?
  - a If yes, go on to send individual commands.
  - b If none of the units responded, go to ["Global Command to First Unit" on page 32](#).
  - c If the first unit went red, but one or more of the others didn't, go to ["Global Command to Subsequent Units" on page 33](#).

### Individual Unit Command

- 1 For each unit in the wall, send the command `op 00 pattern=blue [CR]`, substituting each unit's id in turn.
- 2 Did each unit turn blue when commanded? If not, check each unit's unit and group ID.
- 3 Did you receive an echoed response back each time? If not, go to ["Response From Individual Units" on page 34](#).

## Data Query

- 1 Send a command that asks for information to each unit in turn. For example, `op 00 select .source? [CR]`

**Note:** Query commands *must* be sent to each individual unit separately. There is no such command as a 'global query.'

- 2 Did each unit return its currently selected source? If not, go to ["Response From Individual Units" on page 34](#).

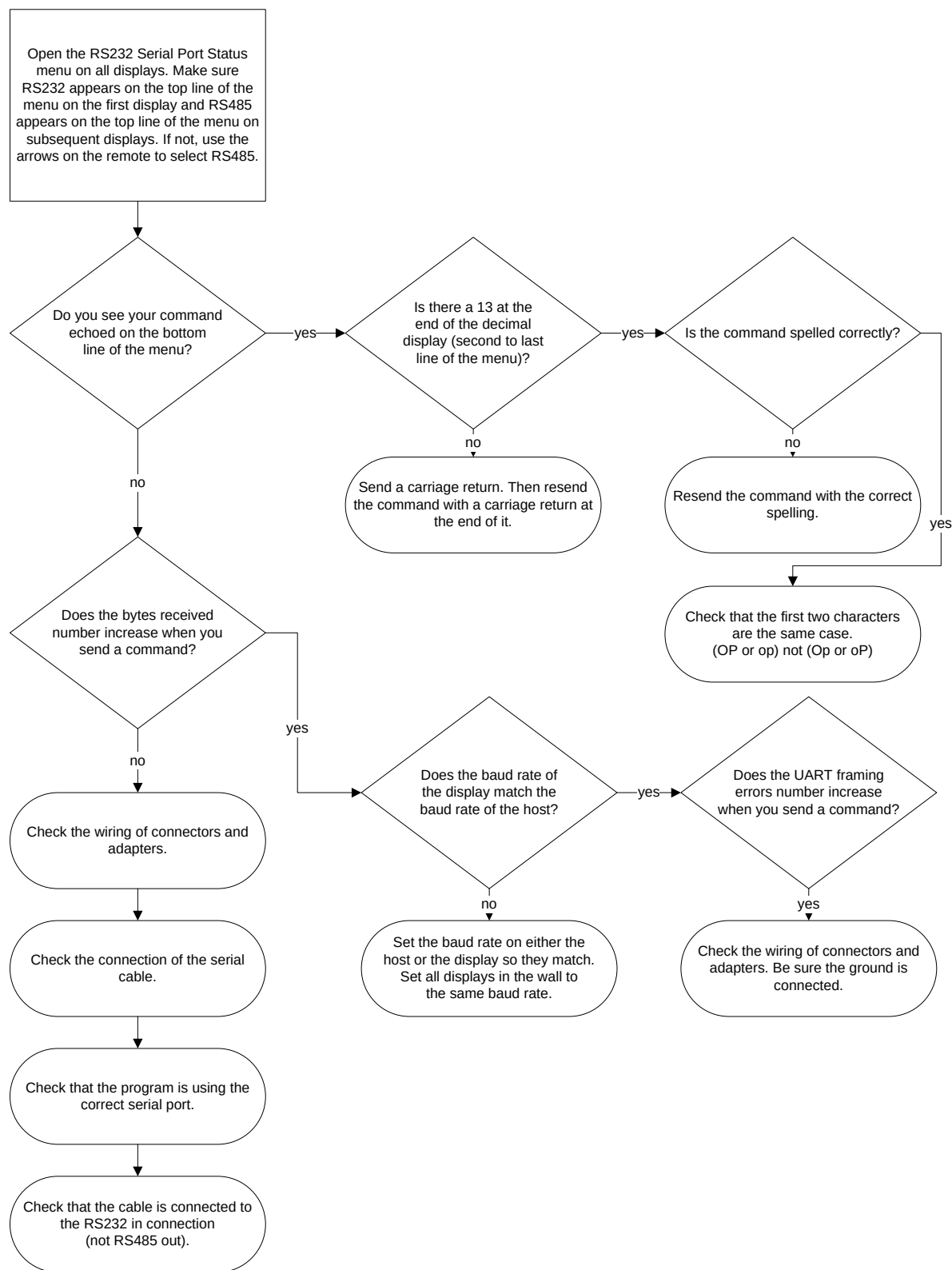
## Useful Commands for RS232 Troubleshooting

If you are trying to send a particular command and are having trouble, first make sure you have established that the wiring and settings are correct by using the simple commands suggested above. After you have established that, the problem is likely in the command itself.

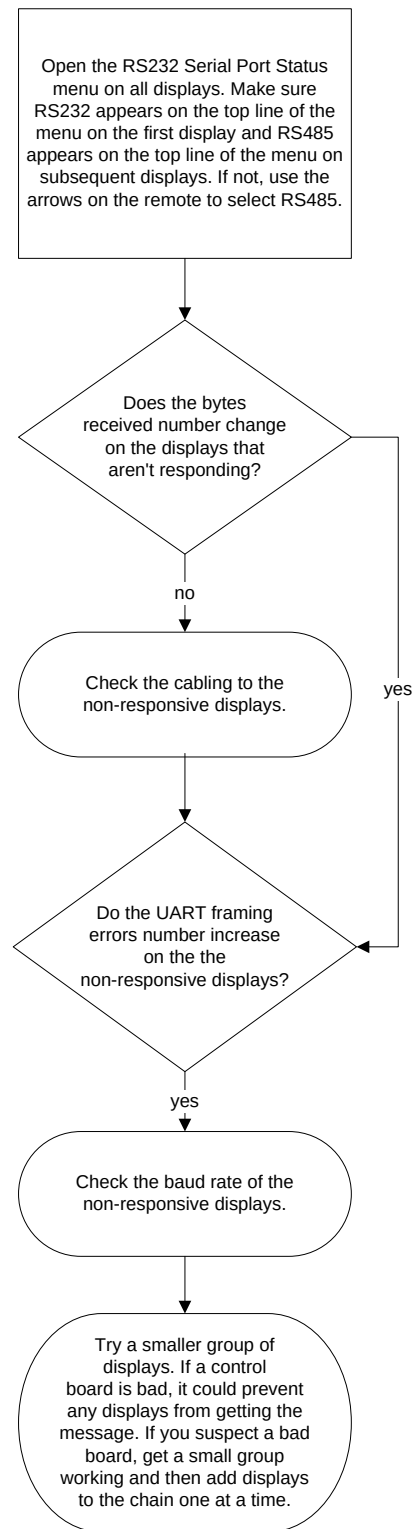
If a unit doesn't respond to a particular command, look at the "Commands Received" number. If it doesn't increase by one, the unit didn't understand the command. Double check the spelling and syntax. Be sure to start operations with `op` or `OP`, not `oP` or `Op`. Be sure to end with a `[CR]`.

If the Commands Received increases but the unit didn't respond, it may be in a state where it cannot respond at this time, or it may have invalid data. Try sending the command with an individual (not global) address, and watch the response. If it sends a `NAK`, it wasn't able to carry out the command. For example, you can't change the brightness unless you have a valid source. It will also send a `NAK` if the data is out of range. For example, you can't set the brightness to 1000. If it sends an `ERR`, it didn't understand the command. Perhaps it is spelled wrong, or you are trying a command that is not valid on this product (such as an audio command on a Bobcat X).

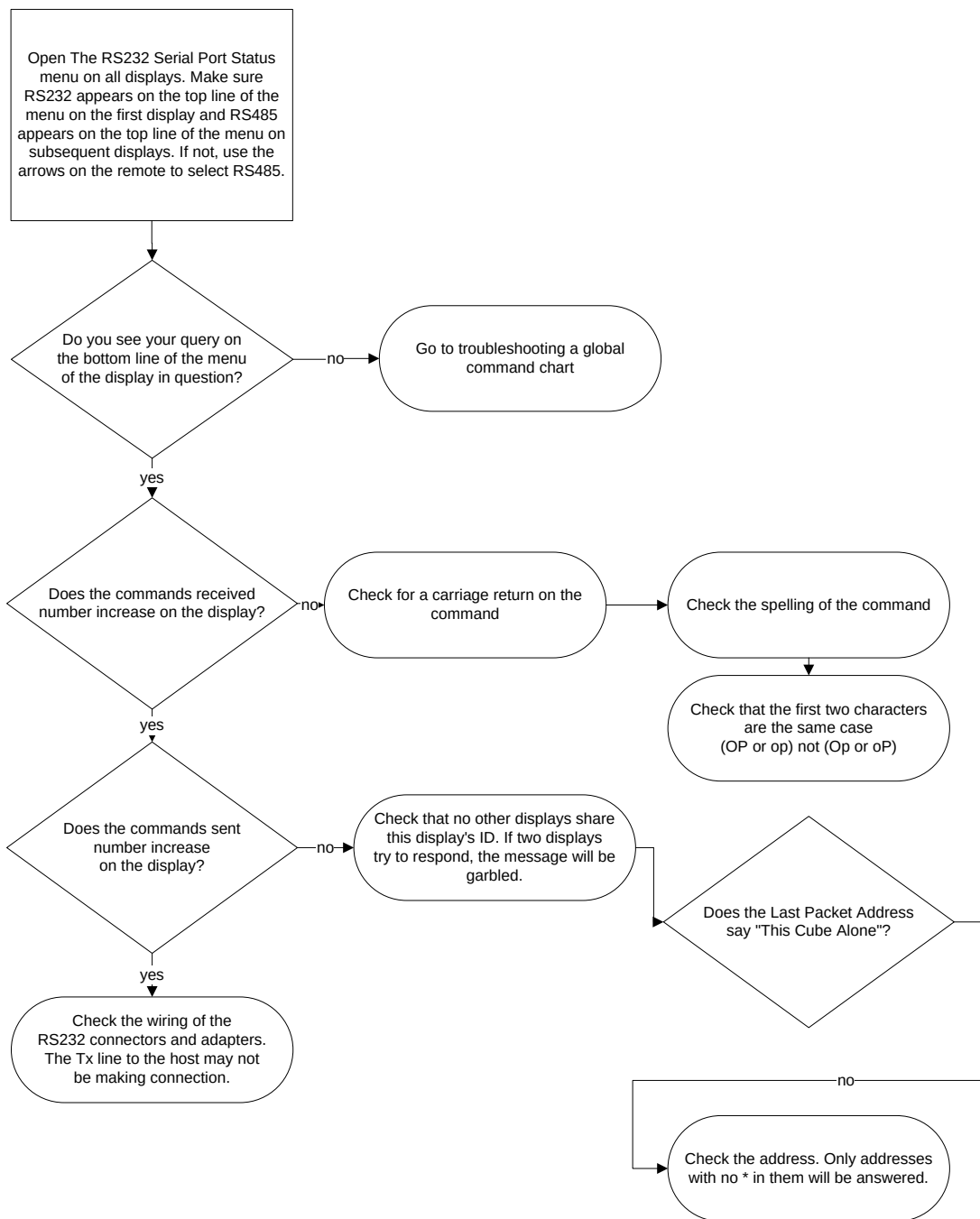
## Global Command to First Unit



## Global Command to Subsequent Units



## Response From Individual Units



## RS232 Diagnostic Troubleshooting

**Discussion:** Look at the LEDs on the control board. The LED named Serial Data should light every time *any valid* command is received. Check this LED in the first display in the series. It should light briefly whenever a command is received.

**Possible cause:** Wrong baud rate.

**Discussion:** The baud rate of the display and the baud rate of the computer (or whatever is sending the RS232 commands) must be the same.

**What to do:** Check the current baud rate of the c50/c67R.

| Main Menu           | PLANAR |
|---------------------|--------|
| Picture             | ▶      |
| Size & Position     | ▶      |
| Aspect Ratio & Wall | ▶      |
| Memory              | ▶      |
| Diagnostics         | ▶      |
| Advanced Options    | ▶      |
| Program Information | ▶      |

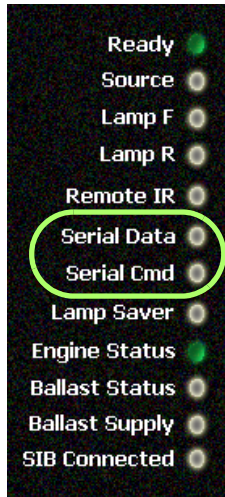
| Advanced Options      | PLANAR |
|-----------------------|--------|
| Engine Alignment      | ▶      |
| Color Balance         | ▶      |
| Miscellaneous Options | ▶      |
| Lamp Settings         | ▶      |
| Serial Port Settings  | ▶      |
| Auto Setup Options    | ▶      |
| Menu Options          | ▶      |
| Message in Picture    | ▶      |

| Serial Port Settings                     | PLANAR   |
|------------------------------------------|----------|
| Group ID                                 | 1        |
| Unit ID                                  | 1        |
| ASCII Response Type                      | Symbolic |
| ASCII Response Terminator                | CR       |
| Baud Rate                                | 19200    |
| <input type="checkbox"/> Terminate RS485 |          |

The baud rate in the SERIAL PORT SETTINGS menu must be the same as the baud rate of the computer.

Possible cause: Wrong address.

What to do: Check the LEDs on the control board as you send a command. If the command is valid, the Serial Data LED will light briefly. If the command was addressed to *this display*, or a group that includes this display, the Serial Cmd LED will also light.



Discussion: For more information about forming commands and a complete command list, download the RS232 Guide for c50/c67R from Planar's website. [For more information, see "Accessing Planar's Technical Support Website" on page 173.](#)

Possible cause: Wrong com port.

What to do: Check the com port setting of the computer. Usually COM1 is correct.

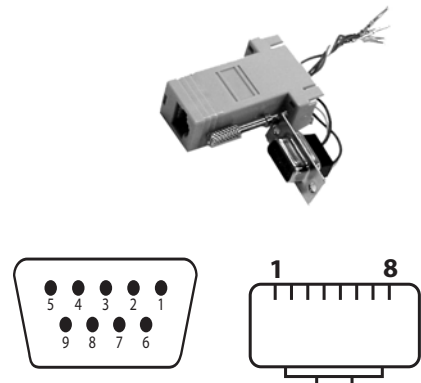
Possible cause: Incorrectly wired adapter.

To go from a computer's 9-pin serial out connector or a conventional automation system's serial port to the RJ45 connector of the RS232 IN on the c50/c67R, you will need an adapter.

#### Wiring the adapter

To go from 9-pin D-sub serial connector on the back of the computer to an RJ45 connector, use a standard RJ45-to-9-pin adapter. Wire it internally as shown. The wiring shown for this adapter is correct for *straight-through* cables. Straight-through cables are wired 1-to-1, 2-to-2, etc.

|             | RJ45 | 9-pin |
|-------------|------|-------|
| Yellow wire | 6    | 3     |
| Black wire  | 3    | 2     |
| Green wire  | 5    | 5     |



RJ45 looking into the socket

What to do: These adapters are available at electronics stores. They come with the wires *not* connected to the 9-pin connector. Wire it as shown in this diagram.

Possible cause: Wrong serial connector on the c50/c67R.

What to do: Be sure the output of the computer goes to the RS232 IN connector of the first c50/c67R in the series.

Discussion: Most computers have RS232 serial outputs but not RS485 OUT. In the c50/c67R, the serial data goes into the first unit in the series to the RS232 IN connector. From there it loops out the RS485 OUT to the next c50/c67R's RS485 IN.

Possible cause: Wrong Cat-5 cable type.

What to do: Check that the cable is *straight thru*. Hold up both ends of the cable with the connectors side-by-side and pointing away from you. You should see the same colors, left-to-right, on both connectors. It is best if the Cat-5 cable uses twisted pairs of wires rather than flat, parallel wires, especially for long distances.

[Back to the top.](#)

[Back to the Troubleshooting List on page 11.](#)

## c50/c67R Doesn't Respond to Remote Control

Possible cause: Power is not on.

What to do: Confirm that the power cable is connected and the power switch is on.

Possible cause: Dead batteries or batteries installed incorrectly.

What to do: First, see that the batteries are in correctly. Then try new batteries. Or try a different remote.

Possible cause: The remote has been disabled by an RS232 command.

What to do: Re-enable IR remote control of the unit.

Discussion: For more information about forming commands and a complete command list, download the RS232 Guide for c50/c67R from Planar's website. [For more information, see "Accessing Planar's Technical Support Website" on page 173.](#)

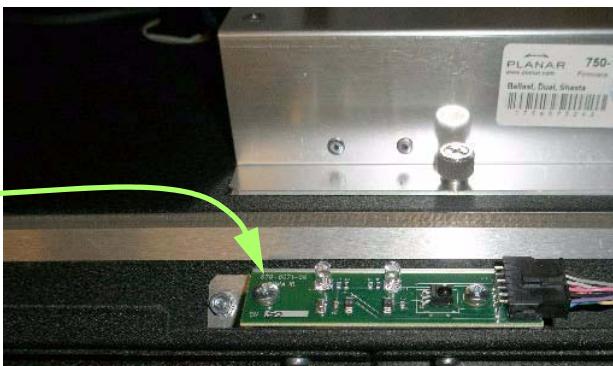
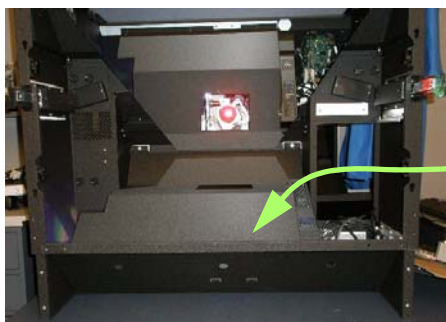
Possible cause: Remote is aimed wrong.

What to do: Step back at about 10 feet (3m) from the c50/c67R and aim the remote at the middle of the screen at a slight upward angle so that the IR beam hits the main mirror squarely.

What to do: Try controlling a different c50/c67R. Did the remote work on a different unit?

- If yes, go to the next possible cause.
- If no, replace the remote.

Discussion: The IR beam (infrared, which you can't see) should go through the screen, bounce off the large mirror, and reflect down into the IR receiver.



Possible cause: Light shield is lifted.

What to do: Lower the light shield.

From the **Front**: Open the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and lower the light shield.

From the **Rear**: [Task 3.1 Gain Access: Open Light Shield on page 135.](#)

Possible cause: IR/LED board is covered, has failed, is disabled or is disconnected.

What to do: Open the screen, swing the control board door in and look at the control board. Or view the control board from the rear.

From the **Front**: [Task 1 Gain Access: Remove Screen on page 67.](#)

- 1** Aim your remote directly at the IR/LED board and press MONITOR. Does the Remote IR LED on the control board flicker briefly?
  - If yes, red and amber flashing lights on the IR/LED board should be giving you some indication as to why the lamp won't light. ([See "On-Screen Code Details and Actions to Take" on page 47.](#)) If neither of these lights are lit, contact the Technical Support Department.
  - If no, go to step **2**.
- 2** Verify that the remote works with other units.
  - If yes, go to step **3**.
  - If no, replace the remote batteries. ([See "c50/c67R doesn't respond to remote control" on page 8.](#))
- 3** Check the cable between the SIB and the IR/LED board and the DVI cable from the control board to the SIB. If the cables are OK, replace the IR/LED board.

From the **Front**: [Task 1.6 Remove/Replace IR/LED Board on page 107.](#)

From the **Rear**: [Task 3 Gain Access: Remove Rear Panel on page 134](#) and [Task 3.1.8 Remove/Replace IR/LED Board on page 159.](#)

[Back to the previous question.](#)

[Back to the Troubleshooting List on page 11.](#)

## ACB Is Not Performing Properly

Discussion: If ACB is working correctly, the following steps will occur.

- 1 ACB is activated using the remote control, WallNet or RS232 commands.
- 2 The ACB mirror flips up.
- 3 Test patterns (Red, Green, Blue & White) appear on the units.
- 4 The ACB mirrors returns to the nominal position.
- 5 Screen content reappears.
- 6 WallNet calculates and loads the units with the correct color values.  
If the previous steps do not occur, see below for a possible cause.
- 7 WallNet displays ACB results.

Possible cause: ACB mirror comes up on power up but doesn't go back down.

What to do: ACB mirror calibration. See [Task 1.7.1 Align ACB Mirror on page 110](#).

Possible cause: Image processor on the source may not have balanced outputs.

What to do: Use an internal test pattern (MAIN MENU > DIAGNOSTICS > TEST PATTERNS > WHITE) to check the ACB result. If the white test pattern shows good uniformity, configure the input levels for the source. See the Installation & Configuration Guide for more information.

Possible cause: One or more units are not configured correctly in WallNet.

What to do: Check the automatic ACB report in WallNet. Make sure the list of units at the top of the report shows serial addresses for all units in the wall. Also make sure that no displays have the same address.

- 1 In WallNet, add or change the unit ID for any unit(s) not included or duplicated in the report. Select the RS232 Setup heading and then scroll down to the **Enter Display IDs** box and enter the missing unit ID(s).
- 2 If all of the units are already configured correctly, go to the next possible cause.

Possible cause: Serial communication problem.

What to do: Check the RS232 communication. See ["RS232 Diagnostic Troubleshooting" on page 35](#).

Possible cause: Incorrect Option Key was installed in a unit or installed incorrectly.

What to do: Check the automatic ACB report in WallNet. The list of units at the top of the report shows the key type, which should be 2 or 3.

What to do: Physically check the Option Key to make sure all pins are seated correctly.

Possible cause: There was an error reading color values.

What to do: Check the automatic ACB report and look for the Freq Count section for any errors in reading the color value. If blue is the errant color, make sure the light shield is not clipping light on top of the sensor. If it is, lift up the light shield (Task 1.5 Gain Access: Open Light Shield on page 82 or Task 3.1 Gain Access: Open Light Shield on page 135) and run ACB again.

What to do: Align the ACB mirror. See [Task 1.7.1 Align ACB Mirror on page 110](#).

What to do: Check the cable from the SIB to the color sensor board to make sure it is plugged in. If it is plugged in, replace the sensor assembly. See [Task 1.7 Remove/Replace Color Sensor on page 108](#) or [Task 3.1.9 Remove/Replace Color Sensor on page 160](#).

Possible cause: ACB mirror servo motor failure.

What to do: Check for the following symptoms.

- 1** As the ACB is performed, watch the display to which the WallNet device is connected. You will be able to see a shadow as the ACB mirror actuates. Is it moving at the same speed as the mirrors in the other displays?
  - If yes, go to step **2**.
  - If no, you will need to replace the servo motor. Contact the Technical Support Department for more information.
- 2** When the mirror is actuated and in position, does the ACB mirror of the main display jitter in position?
  - If yes, you will need to replace the servo motor. Contact the Technical Support Department for more information.
  - If no, go to the next possible cause.

Possible cause: Unit and WallNet software don't have the latest firmware.

What to do: Update the display firmware and WallNet firmware to the latest versions. [For more information, see "Accessing Planar's Technical Support Website" on page 173.](#)

[Back to the Troubleshooting List on page 11.](#)



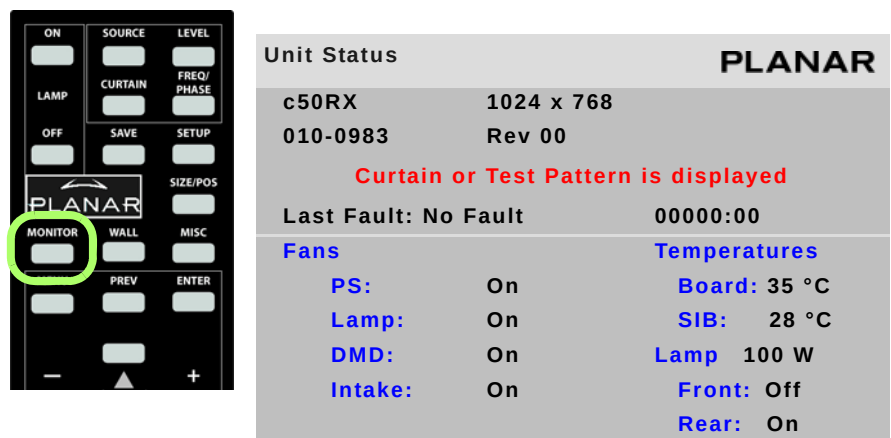
# On-Screen Codes

## Working With On-Screen Codes

The On-Screen codes are red and amber LEDs that flash in specific patterns on the screen. The pattern of flashing lights can tell you what is wrong with the display. There are two ways to turn them on: manually or enable them to come on automatically when the system has a fault.

### Manually Turning On the On-Screen Codes

- 1 Using the remote, press MONITOR.  
You should see the red or amber lights flashing on the screen. This also opens the UNIT STATUS menu, but you won't see it if the lamp is off.



- 2 If there is a bright picture, it may be difficult to see these flashing lights. They are soft, out of focus lights; you may have to move around to see them. Or, press CURTAIN to make the screen black so they will be easier to see.

**Note:** If you see a steady, unblinking, amber light, it means the lamp is on and there are no alarm conditions.

## Automatic On-Screen Code Display

If AUTO CODES is checked in the MISCELLANEOUS menu (MAIN MENU > ADVANCED OPTIONS > MISCELLANEOUS OPTIONS), the code will start showing whenever there is a fault event that forces the lamp off.

| Main Menu               | PLANAR |
|-------------------------|--------|
| Picture                 | ▶      |
| Size & Position         | ▶      |
| Aspect Ratio & Wall     | ▶      |
| Memory                  | ▶      |
| Diagnostics             | ▶      |
| <b>Advanced Options</b> | ▶      |
| Program Information     | ▶      |

| Advanced Options             | PLANAR |
|------------------------------|--------|
| Engine Alignment             | ▶      |
| Color Balance                | ▶      |
| <b>Miscellaneous Options</b> | ▶      |
| Lamp Settings                | ▶      |
| Serial Port Settings         | ▶      |
| Auto Setup Options           | ▶      |
| Menu Options                 | ▶      |
| Message in Picture           | ▶      |

| Miscellaneous                                                                                     | PLANAR      |
|---------------------------------------------------------------------------------------------------|-------------|
| <input type="checkbox"/> Beeper                                                                   |             |
|  Curtain Pattern | Logo        |
| <input checked="" type="checkbox"/> Auto Codes                                                    |             |
| <input checked="" type="checkbox"/> (EDID) Plug and Play                                          |             |
| EDID Detailed Timing 1                                                                            | 1920 x 1080 |
| EDID Diagonal                                                                                     | 70"         |
| Preferred Source Detection                                                                        | 16 x 9      |
| <input checked="" type="checkbox"/> Allow Frame Lock                                              |             |

## Reading On-Screen Codes

The table below describes the pattern of flashing lights that display when auto codes are enabled or when you press MONITOR on the remote. You may wish to print out this page and keep it with you. For a more detailed list of the On-screen codes and what to do to rectify them, [see "On-Screen Code Details and Actions to Take" on page 47.](#)

- 1 Check the flashing LED codes on the screen first.
- 2 If you follow the suggestions in the [On-Screen Code Details and Actions to Take](#) section and have not resolved the problem, look at the LEDs on the control board. [See "Control Board LEDs" on page 63.](#)

| Condition                                                       | Priority | Each block represents 0.2 seconds |       |       |  |       |  |       |       |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------|----------|-----------------------------------|-------|-------|--|-------|--|-------|-------|--|--|--|--|--|--|--|--|
| Fan failed                                                      | 1        | R                                 |       | Amber |  |       |  |       |       |  |  |  |  |  |  |  |  |
| Lamp switcher failed                                            | 2        | R                                 |       | Amber |  | R     |  |       |       |  |  |  |  |  |  |  |  |
| Optical Engine Failed                                           | 3        | R                                 |       | R     |  | Amber |  | R     |       |  |  |  |  |  |  |  |  |
| Lamp failed <sup>1</sup>                                        | 4        | R                                 |       | R     |  |       |  |       |       |  |  |  |  |  |  |  |  |
| Wait On                                                         | 5        | R                                 |       | R     |  | Amber |  |       | Amber |  |  |  |  |  |  |  |  |
| Wait (lamp cooling)                                             | 6        | R                                 |       | R     |  | R     |  | R     |       |  |  |  |  |  |  |  |  |
| One lamp failed <sup>2</sup>                                    | 7        |                                   | Amber |       |  | R     |  | Amber |       |  |  |  |  |  |  |  |  |
| Non critical fan failure <sup>3</sup>                           | 8        |                                   | Amber |       |  | R     |  | R     |       |  |  |  |  |  |  |  |  |
| Lamp off (Auto Off)                                             | 9        |                                   | Amber |       |  | Amber |  | R     |       |  |  |  |  |  |  |  |  |
| Lamp off (Ready)                                                | 10       |                                   | Amber |       |  | Amber |  |       |       |  |  |  |  |  |  |  |  |
| Lamp Striking (starting)                                        | 11       |                                   | Amber |       |  | Amber |  |       | Amber |  |  |  |  |  |  |  |  |
| Lamp on and all OK                                              | 12       | Amber on continuously             |       |       |  |       |  |       |       |  |  |  |  |  |  |  |  |
| R = Red      To show the code, press MONITOR once on the remote |          |                                   |       |       |  |       |  |       |       |  |  |  |  |  |  |  |  |
| 1    If system is dual lamp, both lamps failed.                 |          |                                   |       |       |  |       |  |       |       |  |  |  |  |  |  |  |  |
| 2    One lamp failed, or partial lamp switcher failure.         |          |                                   |       |       |  |       |  |       |       |  |  |  |  |  |  |  |  |
| 3    Ballast, intake or power supply fan.                       |          |                                   |       |       |  |       |  |       |       |  |  |  |  |  |  |  |  |



## On-Screen Code Details and Actions to Take

Click below on the pattern of lights that you see flashing on the screen or turn to the page indicated.

|    |                                                                                    |                                                                                   |                                                                                            |                                                                                   |                                                 |
|----|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------|
| 1  |   |  | <a href="#">Fan failure Critical (Lamp, DMD) (page 48)</a>                                 |                                                                                   |                                                 |
| 2  |   |  |           | <a href="#">Lamp Switcher Failed (page 50)</a>                                    |                                                 |
| 3  |   |  |           |  | <a href="#">Optical Engine Failed (page 51)</a> |
| 4  |   |  | <a href="#">Lamp Failed (if single-lamp) or Both Lamps Failed (if dual-lamp) (page 52)</a> |                                                                                   |                                                 |
| 5  |   |  |           |  | <a href="#">Wait On (page 54)</a>               |
| 6  |   |  |           |  | <a href="#">Wait (Lamp cooling) (page 55)</a>   |
| 7  |   |  |           | <a href="#">One Lamp Failed (page 56)</a>                                         |                                                 |
| 8  |   |  |           | <a href="#">Fan Failure Non-Critical (Intake, Power Supply) (page 57)</a>         |                                                 |
| 9  |   |  |           | <a href="#">Lamp Off (Auto Off) (page 58)</a>                                     |                                                 |
| 10 |   |  | <a href="#">Lamp Off (Ready) (page 59)</a>                                                 |                                                                                   |                                                 |
| 11 |   |  |           | <a href="#">Lamp Striking (starting) (page 60)</a>                                |                                                 |
| 12 |  |                                                                                   |                                                                                            |                                                                                   | <a href="#">Lamp On and All OK (page 61)</a>    |

The numbers show the priority of the problem. If two events occur, such as a fan stops (Priority 1) and the lamp is cooling (Priority 6), only the lower numbered pattern (with the higher priority) will flash on the screen; in this case, Priority 1 red-amber.



Priority 1

This code means: Fan failure Critical (Lamp, DMD)

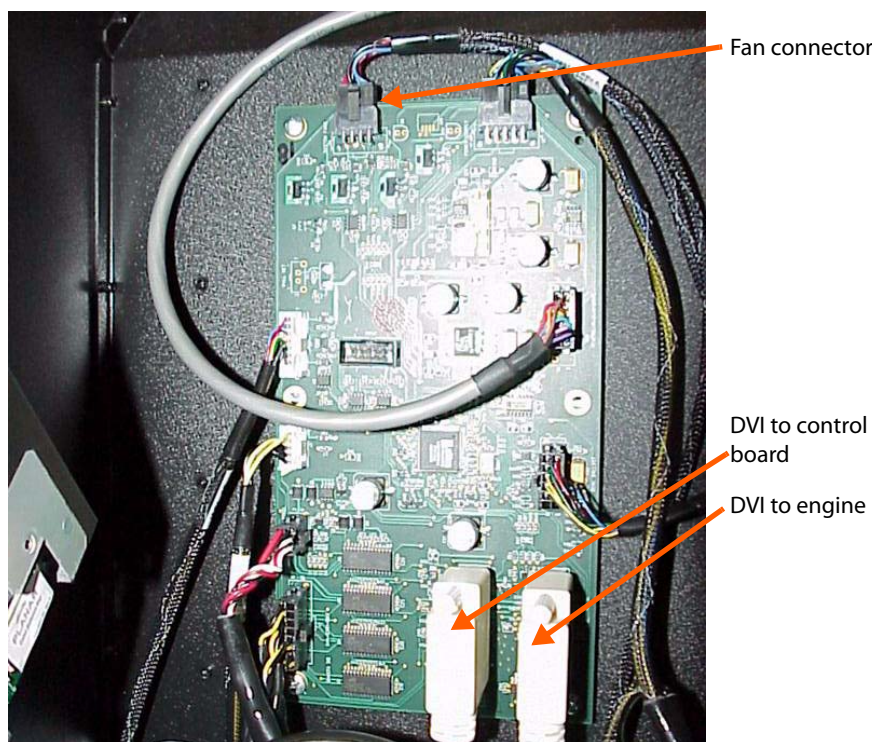
Discussion: Check the control board LEDs to determine whether it is the lamp fan, DMD fan, or both.

Possible cause: Cabling Issue

What to do: Verify that the fan connector is plugged into the SIB and is well seated. If this is OK, check the the connections on the DVI cable from the control board to the SIB and from the SIB to the engine.

From the **Front**: Remove the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and lift up the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)).

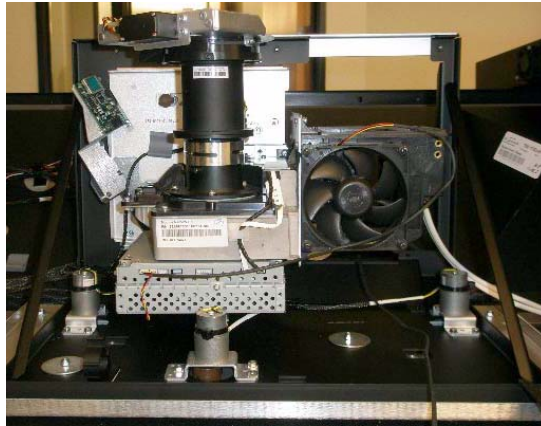
From the **Rear**: Power down the display and remove the power cord. Open the control board door to view the SIB and the bottom of the control board.



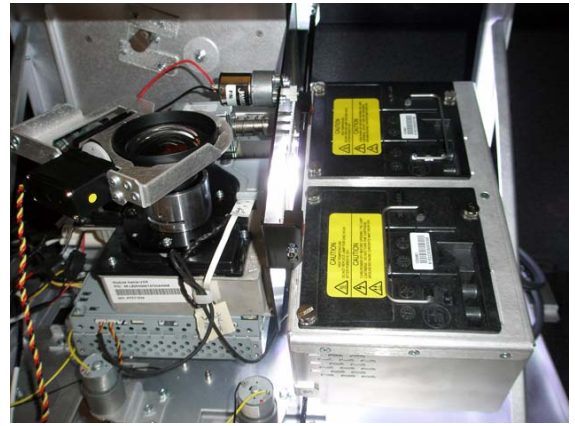
What to do: Verify that the "failed" fan is fully connected to the correct connector. Each connector on the cable is labeled with the fan to which it should be connected.

From the **Front**: With the screen removed and the light shield lifted, check that each connector is plugged in correctly by looking at the label on each connector.

From the **Rear**: Remove the rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)) and lift the light shield ([Task 3.1 Gain Access: Open Light Shield on page 135](#)). Check that each connector is plugged in correctly by looking at the label on each connector.



Single lamp



Dual lamp

Possible cause: Fan failed

What to do: Replace the fan(s).

From the **Front**: See [Task 1.5.1.3 Remove/Replace Lamp Fan on page 87](#) or [Task 1.5.5.1 Remove/Replace DMD Fan on page 103](#).

From the **Rear**: [Task 3.1.1.3 Remove/Replace Lamp Fan on page 140](#) or [Task 3.1.7.1 Remove/Replace DMD Fan on page 156](#).

Possible cause: Fan low-voltage cable is wrapped too close to the high-voltage ballast cable.

What to do: Check cable routing to make sure the low-voltage fan cable is not close to the high-voltage ballast cable.

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## Red Amber Red

Priority 2

This code means: Lamp Switcher Failed

**Note:** This code only appears in dual-lamp systems.

**Discussion:** This is *not* a failure of either lamp. The system is telling you “I tried to put one lamp into position and then the other one, but I couldn’t do it.”

When the system is trying to put a lamp into position, it will only try to do so for 23 seconds. Then it will timeout, reverse direction and attempt to put the other lamp into position. Anything that prevents the carriage from moving or from sensing that it has put the lamp into position, will cause this timeout to occur.

**Possible cause:** Neither limit switch is connected. The system will not know when the lamps are in position.

**What to do:** Make sure the cable from the SIB to each of the lamp switches is connected. The limit switches are located under the front and rear of the lamp switching mechanism.  
 From the **Front:** Remove the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and lift up the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)).  
 From the **Rear:** Power down the display and remove the power cord. Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))

**Possible cause:** The solenoid is not connected or is jammed and unable to move.

**What to do:** Check that the cable from the SIB to the solenoid is connected at both ends and that the solenoid prong moves freely. If you cannot fix the solenoid placement, replace the lamp switcher. (Request specific instructions for your specific model when replacing the lamp switcher.)

**Possible cause:** The motor is not connected or is not working.

**What to do:** Check that the cable from the SIB to the motor is connected at both ends. When you try to move the lamp, you can hear the motor trying to move, even if you can’t see it move. Also check to see if the motor gear is stripped. Replace the lamp switcher. (Request specific instructions for your specific model when replacing the lamp switcher.)

**Possible cause:** An obstruction or misalignment is keeping the carriage from arriving at either position.

**What to do:** Check for anything obstructing the carriage (such as a cable or a bent fan bracket) or anything causing the carriage to be out of position (such as a loose screw or a misalignment of the engine gear teeth and the carriage rack).

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## Red Red Amber Red

Priority 3

This code means: Optical Engine Failed

Possible cause: Loose cables.

What to do: Check all cable connections to the optical engine. Check that the HDMI cable retainers are in place at both ends of the cable. Check the HDMI cable for kinks or crimps. Reseat all cables.  
 From the **Front**: Remove the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and lift up the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)).  
 From the **Rear**: Remove the rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)).

Possible cause: Optical Engine failed.

What to do: Swap optical engines with another display. If the problem follows the optical engine, order a new optical engine.  
 From the **Front**: See [Task 1.5.5 Remove the Optical Engine on page 97](#) and [Task 1.5.5.2 Replace the Optical Engine on page 104](#).  
 From the **Rear**: See [Task 3.1.7 Remove the Optical Engine on page 151](#) and [Task 3.1.7.2 Replace the Optical Engine on page 157](#).

What to do: If none of these suggestions work, see [Red Red \(page 52\)](#).

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## Red Red

Priority 4

This code means: Lamp Failed (if single-lamp) or Both Lamps Failed (if dual-lamp)

**Discussion:** It's very unlikely that both lamps or both ballasts would fail simultaneously. It could be a simple lamp or ballast problem if there has been a single-lamp failure that was not fixed, and now the second lamp has failed. However, if both lamps suddenly do not light, it is more likely a general connection failure.

**Possible cause:** The lamp itself failed to strike (light) because the lamp is bad.

**What to do:** Remove the lamp and look at it. If it has loose glass inside, you know it is dead.  
 From the **Front:** Open the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and then lift the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)). To remove/replace the lamp(s), see [Task 1.5.1 Remove/Replace Lamp on page 84](#).  
 From the **Rear:** Remove the rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)) and lift the light shield ([Task 3.1 Gain Access: Open Light Shield on page 135](#)). To remove/replace the lamp(s), see [Task 3.1.1 Remove/Replace Lamp on page 137](#).

**What to do:** Swap this lamp for another lamp known to be good, such as a lamp from another display that is working. Put the suspected bad lamp in the other display. If the new lamp works, and the old lamp doesn't work in the other display, you can be sure it is the lamp.

**Possible cause:** The lamp failed to strike because the ballast is bad.

**What to do:** If you know the lamp is good from the test above, swap the ballast with a known good ballast from another display that is working properly. If the lamp lights, the ballast was bad. Order a new ballast.  
 From the **Front:** Open the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and then lift the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)). To remove the ballast, see [Task 1.5.4 Remove the Lamp Ballast on page 93](#). To replace the ballast, see [Task 1.5.4.1 Replace the Lamp Ballast on page 96](#).  
 From the **Rear:** Remove the rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)) and lift the light shield ([Task 3.1 Gain Access: Open Light Shield on page 135](#)). To remove the ballast, see [Task 3.1.4 Remove the Lamp Ballast on page 145](#). To replace the ballast, see [Task 3.1.5 Replace the Lamp Ballast on page 149](#).

**Discussion:** It is better to do your tests with a lamp or ballast from another c50/c67R that is working than to use a new lamp or ballast out of the box. Why? Because there is a small chance that the new still-in-the-box lamp or ballast is bad and will not work. This is a very rare event, but when you are testing, it is good to test with something that you know works.

**Possible cause:** General connection failure.

**What to do:** If the suspect lamp and ballast work in another system, check all of the cables in this unit (connected to the control board, SIB, ballast, lamp and engine) to make sure they are connected and well seated.

**Note:** Check the color wheel data ribbon cable and the TCO cable in the rear of the engine. If one of these is disconnected, the lamps will not strike.

**What to do:** If none of these suggestions work, see [Red Red Amber Red \(page 51\)](#).

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Red Red Amber Amber

Priority 5

This code means: Wait On

Possible cause: Lamp Saver is on; there was no source, and now there is a source.

What to do: Be patient. When the cool-down period has ended, the lamp will turn on automatically.

Discussion: The c50/c67R had no source for the length of the Lamp Saver setting, so the lamp was turned off. During the cool-down period, the source returned, but since the cool-down period was not complete, the lamp is still off.

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Priority 6

This code means: Wait (Lamp cooling)

Possible cause: Lamp is in its cool-down period.

What to do: Wait for the cool-down period to end.

Discussion: A cool-down period of about one minute occurs after the lamp is turned off to prevent it from re-striking when it is hot. The lamp must be cool before it is started again. Every time the lamp is turned off, the c50/c67R goes into this Wait state, and the fans run for one minute. That is why it is important to turn off the lamp and wait for it to cool before turning off the AC power, which stops the fan.

When AC power is turned on, the c50/c67R control board does not know how long the lamp has been off. It could have been days ago that the lamp was turned off, and they are cool. Or it could have been that AC power was lost for one second. Therefore, for safety (of the lamp) the cool-down period starts whenever AC power is applied. At the end of the cool-down period one of these events will occur:

- The fans will turn off and the c50/c67R will go into Standby to wait for a command from the remote or RS232 to turn the lamp on.
- The lamp will turn on automatically because Auto Lamp On was selected in the ADVANCED OPTIONS > LAMP SETTINGS menu.

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## Amber Red Amber

Priority 7

This code means: One Lamp Failed

**Note:** This code only appears in dual-lamp systems.

**Discussion:** The code is caused by either a lamp/ballast problem that is preventing a lamp in position from lighting or from staying lit, or by a mechanical problem that is preventing the second lamp from getting into position.

**What to do:** Determine whether you have a lamp/ballast problem or a mechanical problem and then go to the appropriate section.

- 1** If a lamp is not already lit, light it now.
- 2** If a lamp is lit, go to the LAMP SETTINGS menu and select SWITCH TO OTHER LAMP NOW. The lamp carriage should move the other lamp into position. If it does not, you probably have a mechanical problem; see [Red Amber Red \(page 50\)](#). If the other lamp moves into position but does not light and the carriage returns to the first position, you probably have a lamp/ballast problem; see [Red Red \(page 52\)](#).

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## Amber Red Red

Priority 8

This code means: Fan Failure Non-Critical (Intake, Power Supply)

Discussion: Check the control board LEDs to determine whether it is the intake fan, power supply fan, or both.

Possible cause: Cabling Issue

What to do: If the intake fan has failed, verify that it is fully connected to the correct connector. (There is a "spare" connector that will run the fan but is not sensed. The intake fan must be connected to the connector labeled "intake.")  
 From the **Front**: Remove the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) and lift up the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)).  
 From the **Rear**: Remove the rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)).  
 Make sure that the intake fan connector is plugged in correctly.

Possible cause: Fan failed



What to do: Replace the power supply module or the intake fan accordingly.

From the **Front**: Remove the screen ([Task 1 Gain Access: Remove Screen on page 67](#)), lift up the light shield ([Task 1.5 Gain Access: Open Light Shield on page 82](#)). Remove and replace the intake fan ([Task 1.5.2.1 Remove/Replace Intake Fan on page 91](#)) or remove and replace the power supply module ([Task 1.5.2 Remove Power Supply Module on page 90](#) and [Task 1.5.3 Replace Power Supply Module on page 92](#)).

From the **Rear**: Remove the rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)), lift the light shield ([Task 3.1 Gain Access: Open Light Shield on page 135](#)). Remove and replace the intake fan ([Task 3.1.2.1 Remove/Replace Intake Fan on page 143](#)) or remove and replace the power supply module ([Task 3.1.2 Remove Power Supply Module on page 142](#) and [Task 3.1.3 Replace Power Supply Module on page 144](#)).

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## Amber Amber Red

Priority 9

This code means: Lamp Off (Auto Off)

Possible cause: There is no problem. The lamp was turned off by the Lamp Saver feature, which turns the lamp off when there is no source picture for a period of time.

What to do: Turn on the lamp with the remote, or with an RS232 command. Check the source picture to see that it is present. The c50/c67R was possibly working from an input connector that had no source connected to it.

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## Amber Amber

Priority 10

This code means: Lamp Off (Ready)

Possible cause: There is no problem. The lamp is waiting for you to command it to turn on.

What to do: Aim the remote at the c50/c67R and press the ON button. Or send a Lamp On command with RS232 commands. Or leave the lamp off.

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**Amber Amber Amber**

Priority 11

This code means: Lamp Striking (starting)

Possible cause: There is no problem.

Discussion: The lamp is trying to light. Give it time. It takes about ten seconds for the lamp to light and the control board to know it is lit. If the lamp does not light after several tries, the code will become [Red-Red](#).

Discussion: If the carriage is moving when you see this code, the lamp will not strike until the carriage has stopped.

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## Solid Amber

Priority 12

This code means: Lamp On and All OK

What to do: There is no problem; the lamp is on. However, if the screen is black and you think it shouldn't be, follow the steps below.

- 1** Using the remote, press the MONITOR button. Verify that the UNIT STATUS menu appears.
- 2** There might be a test pattern displayed or a problem with the source. [See "Troubleshooting c50/c67R" on page 7.](#)
- 3** There might be something that is preventing the light from the lamp from getting to the screen.
  - a** Open the screen ([Task 1 Gain Access: Remove Screen on page 67](#)) or rear panel ([Task 3 Gain Access: Remove Rear Panel on page 134](#)).
  - b** Verify the lamp is lit.
  - c** If this is a dual-lamp system, verify that the lit lamp is the one in position. If not, check the LEDs on the control board to see which lamp the system believes is lit. If the lamp that is physically in position but not lit matches the LED, the lamps are connected to the wrong ballast cables or the ballasts are connected to the wrong SIB cables. If the LED does not match the lamp in position, the limit switches for the dual-lamp carriage are connected to the wrong SIB cables. Find the cable pair that is reversed and correct the problem.
  - d** Verify that light is coming through the optical engine. Although there is little chance of retinal damage if the image is black, it is suggested that you do not look directly down the lens. If you look off axis at about 50 degrees, you might be able to see a spot of light in the lens.
  - e** Verify there is no obstruction (including the lens cap) preventing the light from reaching the screen. For example, the light shield is not in the correct position or something is covering the hole in the light shield.

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# Control Board LEDs

## Using Control Board LEDs

The LEDs on the control board can give you more detailed information about the state of the c50/c67R. From the rear, the LEDs are easily seen. From the front, open the screen and swing the control board door in. There are no electrical interlocks in the c50/c67R.

### Meaning of the LEDs on the Control Board

| LED Name       | Off                            | Green                                                                                                  | Amber                                                                                                                       | Red                                                                                              |
|----------------|--------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Ready          | The lamp is on                 | Ready for a Lamp On command.                                                                           | Cool-down period; cannot strike lamp now.                                                                                   | Fault condition.                                                                                 |
| Source         |                                | The selected source is detected and displayed.                                                         | The selected source is going through automatic adjustments.                                                                 | The selected source is not detected.                                                             |
| Lamp F         | The lamp is off                | The lamp is on.                                                                                        | Lamp was requested to turn on, but still striking.                                                                          | The lamp failed to strike.                                                                       |
| Lamp R         | The lamp is off                | The lamp is on.                                                                                        | Lamp was requested to turn on, but still striking.                                                                          | The lamp failed to strike.                                                                       |
| Remote IR      | No IR detected                 | An IR signal was received but may not be valid. The LED will flicker in the presence of any IR energy. |                                                                                                                             |                                                                                                  |
| Serial Data    | Off is the normal state        | Bytes received on any serial channel.                                                                  |                                                                                                                             |                                                                                                  |
| Serial Command | Off is the normal state        | Detected serial data packet addressed to this cube.                                                    |                                                                                                                             |                                                                                                  |
| Lamp Saver     | Lamp Saver not active          | Lamp Saver is active and there is a valid source.                                                      | Lamp Saver is active, there is a valid source present now, but lamp is cooling. Lamp will turn on when cooling is finished. | Lamp Saver is active and there is no valid source. When a source is detected, lamp will turn on. |
| Engine Status  |                                | Optical Engine is OK.                                                                                  |                                                                                                                             | Optical Engine fault was detected.                                                               |
| Ballast Status | Lamp is off                    | Communication with ballast is OK.                                                                      | Ballast has returned an error.                                                                                              | Can't communicate with ballast.                                                                  |
| Ballast Supply |                                | High voltage supply is on.                                                                             |                                                                                                                             |                                                                                                  |
| SIB connected  | [SIB = System Interface Board] | SIB is properly connected to the control board.                                                        | SIB is properly connected to the control board but not to the engine.                                                       | SIB is not properly connected to the control board.                                              |

***Meaning of the LEDs on the Control Board***

| LED Name   | Off         | Green   | Amber | Red    |
|------------|-------------|---------|-------|--------|
| Intake Fan | Not running | Running |       | Failed |
| Lamp Fan   | Not running | Running |       | Failed |
| DMD Fan    | Not running | Running |       | Failed |
| PS Fan     | Not running | Running |       | Failed |

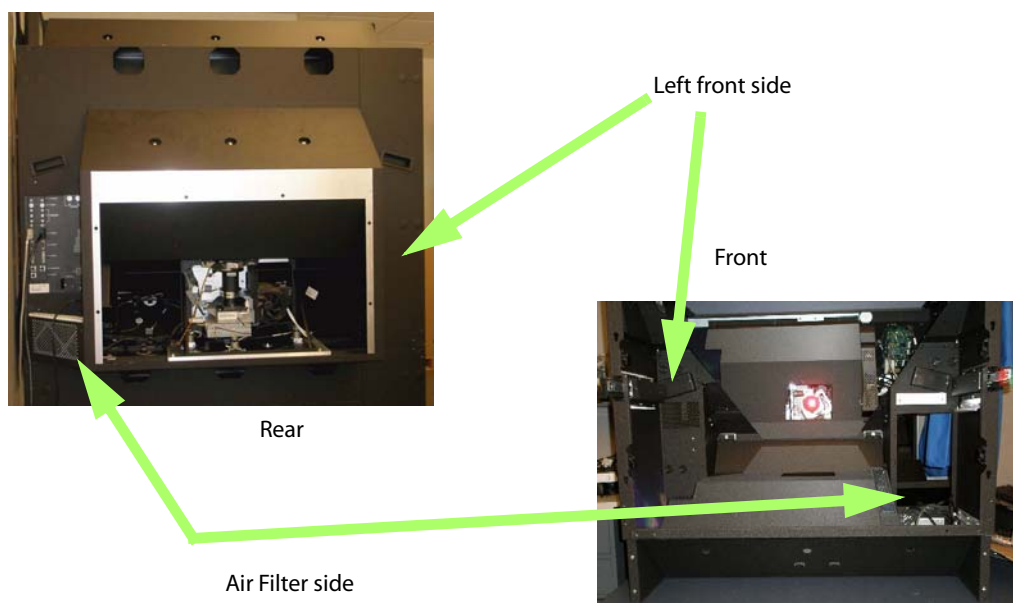
# Front-Access Maintenance and Service Procedures

## Introduction

The procedures in this chapter are similar to those contained in ["Rear-Access Maintenance and Service Procedures" on page 125](#), but the actual steps and methods you use may be different.

**Caution:** There are no electrical interlocks in the c50/c67R. Opening the screen, raising the light shield or removing the rear panel DOES NOT turn off the lamp or the high voltage.

**Note:** It can be confusing to refer to the right side or left side of the display when you are working from the front and the rear. Therefore, in this section one side is called the air filter side and the other is called the left front side.



**Note:** All pictures and views *in this section* are from the **front** unless otherwise noted.

**Note:** Some c50/c67R displays have a single-lamp system; some have a dual-lamp system. There are pictures of both throughout this manual.

If you have a part under warranty or a part that can be repaired under Planar's repair option, contact Planar's Technical Support Department. [See "Accessing Planar's Technical Support Website" on page 173.](#)

## Required Tools

- #1 and #2 Phillips screwdrivers, long #2 Phillips screwdriver
- Needle-nose pliers
- 3/16" nut driver
- Suction cup

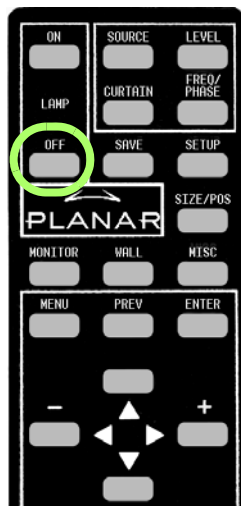
# 1 Gain Access: Remove Screen

The method for opening the screen depends on the configuration you have. c50/c67R screens have very thin mullions and “float.” Each screen rests on the brackets. When removing a screen, take care when removing it so it doesn’t bump against other screens.

**Note:** Before you remove any screens, be aware that each screen is slightly different. Make note of which screen was installed on which display before you remove them so when you replace the screens the correct screen goes on the correct display.

- 1 Using the remote control, turn off the lamps of all units on which you need to perform service (even if you are only going to remove the screen) and allow the cooling fans to stop (approximately one minute) before opening the screen.

Aim the remote at the unit and press OFF to turn off the lamps.



**Note:** When c50/67Rs are installed in a row, the screens are very close together. If you are removing a screen in the middle of the array, use caution as you pull it out.

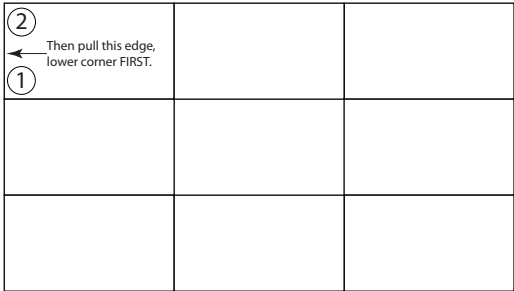
- 2 Using a suction cup, remove the screen from the wall, pulling out steadily about 1/2” (13mm). The screen will pop out at this corner.

**Note:** Release the suction cup by pinching the two rubber posts together.



3 Pull the outer edge to release all the spring latches.

Pull outside lower corner, and then pull outside upper corner.

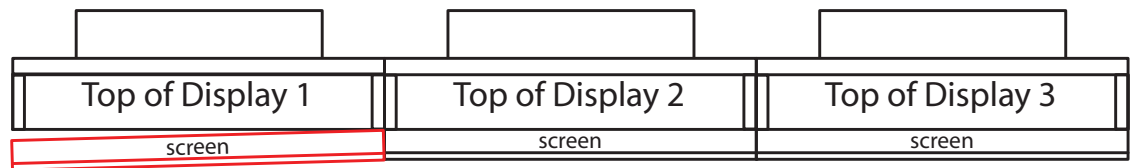


4 Pull the screen all the way out on the support rails.

**Caution:** When the screen is fully extended on the support rails, the unit could tip forward if not tied back to a support structure or wall, or appropriately anchored to other units.

5 Lift the screen from the support rails.  
To open the screen, be aware that simply pulling from the outside will cause the inside edge of the screen to press up against the screen next to it and crush the edge.

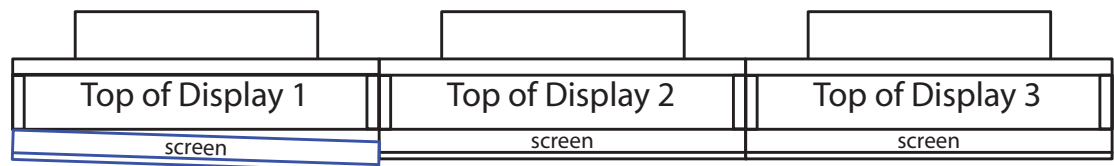
**Caution:** When c50/c67Rs are installed in a row, the screens are very close together. Pulling a screen from the outside of the row causes it to bind on its neighbor, possibly damaging both.



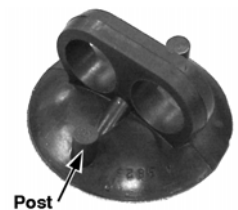
The result of pulling a screen from the outside edge.



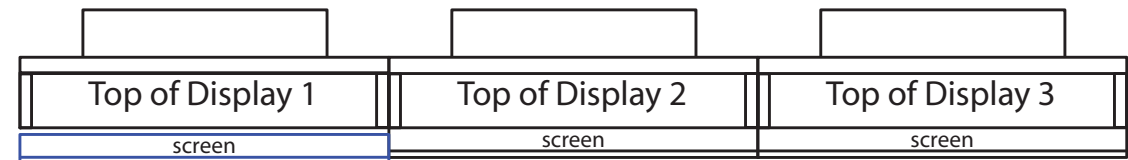
**DON'T DO THIS!**



Pull inside edge of screen first,  
**but just a little.**

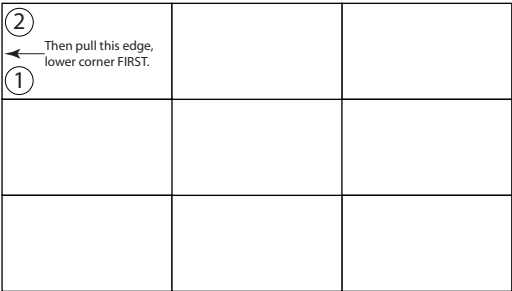


**Note:** Release the suction cup by pinching the two rubber posts together.



Then, pull the outer edge,  
**until the latches release.**

Pull outside lower corner next, and then pull outside upper corner last.



| Where to go from here                                                            |
|----------------------------------------------------------------------------------|
| <a href="#">Task 1.2 Change Air Filter on page 73</a>                            |
| <a href="#">Task 1.3 Remove/Replace Control Board on page 74</a>                 |
| <a href="#">Task 1.4 Remove/Replace Option Key on page 80</a>                    |
| <a href="#">Task 1.5 Gain Access: Open Light Shield on page 82</a>               |
| <a href="#">Task 1.6 Remove/Replace IR/LED Board on page 107</a>                 |
| <a href="#">Task 1.7 Remove/Replace Color Sensor on page 108</a>                 |
| <a href="#">Task 1.8 Remove/Replace System Interface Board (SIB) on page 113</a> |
| <a href="#">Task 1.9 Remove/Replace Color Wheel on page 115</a>                  |
| <a href="#">Task 1.10 Close Light Shield on page 122</a>                         |
| When you have completed the tasks, return here                                   |

- 6** When all tasks have been completed, replace the screen. ([Task 2 Replace Screens on page 123](#))

## 1.1 Cleaning the Screen and Mirror

**Note:** This process is best done when you are about to replace the screen(s).

Dirt is everywhere, and unless the displays you service are in a super-clean room, from time to time you will have to clean the screens, mirrors, and lenses of displays. It is easier to see dirt when the screen is gray. Use the internal gray test pattern.

### Cleaning Products and How to Use Them

For mirrors and screens, a foam spray cleaner seems to work well. It is sold under different names in different parts of the world. It is available from many janitor supply companies or building maintenance supply companies. Ask for one of the following:

- Claire #50 glass cleaner, or ([www.clairemfg.com](http://www.clairemfg.com))
- Sprayway #50 glass cleaner ([www.spraywayinc.com](http://www.spraywayinc.com))

It is probably sold under a local name, but it all comes from one company. If you ask for either of the two names above (it is sold under both), you will get this cleaner under the local name.

This cleaner is good on glass (lenses and mirrors) and acrylic (screens). Other cleaners are available, such as Windex™, work well on glass. Always spray the cleaner on the cloth, then wipe the screen.

**Caution:** Whether the screen is glass or acrylic, don't lean on it or let it get scratched.

Wipe the mirror or screen gently with a lint-free cloth or lint-free paper. Turn the cloth over to the dry side and continue wiping to take up the haze.

### Other Cleaning Product Recommendations

You may use any foaming glass cleaner that does not contain alcohol or ammonia.

### Cloth to Use

**White cotton cloth** is better for cleaning than colored cloth. The dyes in some colored cloth tend to make it less absorbent.

Paper towels tend to leave lint. A better paper towel for cleaning are shop towels. These lint free paper towels are generally available at electronic parts stores or auto supply stores.

**Cheesecloth** is another good choice. This open-weave cotton material is light and absorbent.

### Removing Dry Dust

Often the cleaning problem is just dust, not fingerprints or other oily dirt. If it's just dust, wiping with a dry cheesecloth or a dry shop towel will usually do the job. For dry dust on the mirror or screen, you can try the commercial product called Swiffer™ or similar products.

## Cleaning Screens

Clean the inside and outside of the screen. Do not spray the cleaner directly on the screen. Instead, spray the cleaner on a clean cloth and then wipe the screen.

**Caution:** DO NOT spray liquid of any kind on the screen. It can drip down the screen and wick up between the layers. When liquid gets between the screen layers, it is impossible to remove, and the screen is ruined!

## Cleaning Lenses

**WARNING!** The lens of the c50/67R is glass. Improper cleaning methods can easily scratch the lens. On the lens, use only a microfiber cloth. Do not use cotton cloth or paper towels.

Clean lenses as you would with any high-quality optical glass, such as camera lenses.

## Where Is the Dirt?

When you see dirt in the picture, you can sometimes tell where it is by its focus. Use a gray test pattern to see the dirt most easily.

Small specks of dirt or dust that are in **very sharp focus** are on the screen itself.

If the dirt is in **soft focus**, it is probably a smudge on the large mirror.

Dirt on the output lens cannot be seen in the picture. However, that does not mean you should not clean this lens. Dirt here will reduce the brightness of the picture, but it won't show up as specks in the picture.

**Note:** Dirt or smudges you see in the picture are never on the lens, unless the lens smudge is very large or very thick.

## 1.2 Change Air Filter

The air filter is in the back of the unit below the power cord.

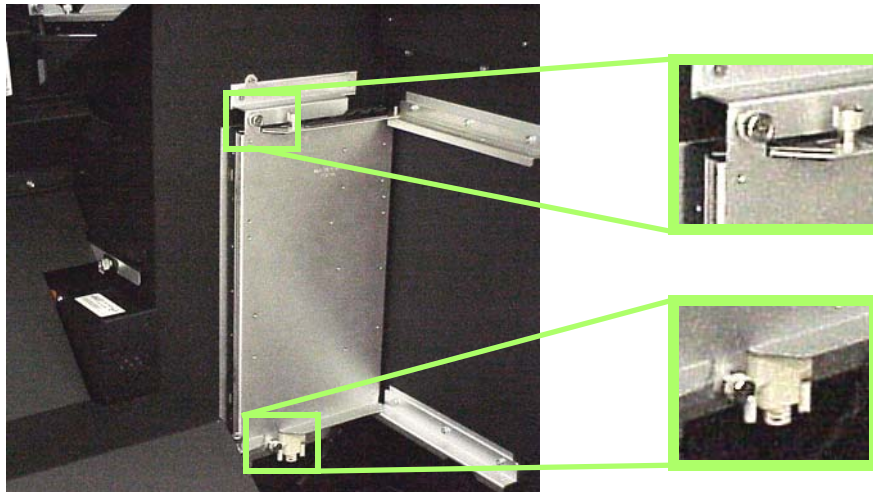
- 1** Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2** Remove the front screen ([Task 1 Gain Access: Remove Screen on page 67](#)).
- 3** Loosen the captive screws at the top and bottom of the control board.
- 4** Lift up and remove the control board from its pin hinges.
- 5** Reach through to the front of the unit to power down the unit and remove the power cord.
- 6** If necessary, lift up the cables so they are not in the way of the air filter.
- 7** Reach through to the front of the unit and pull straight up on the air filter to remove it. From the front, it might be hard to see.
- 8** Insert the new air filter. Arrows on the air filter should indicate air flow direction, which is into the unit.
- 9** Plug in the power cord and turn on the power.
- 10** Reposition the control board on its pin hinges.
- 11** Tighten the captive screws at the top and bottom of the control board.
- 12** Reinstall the front screen.

## 1.3 Remove/Replace Control Board

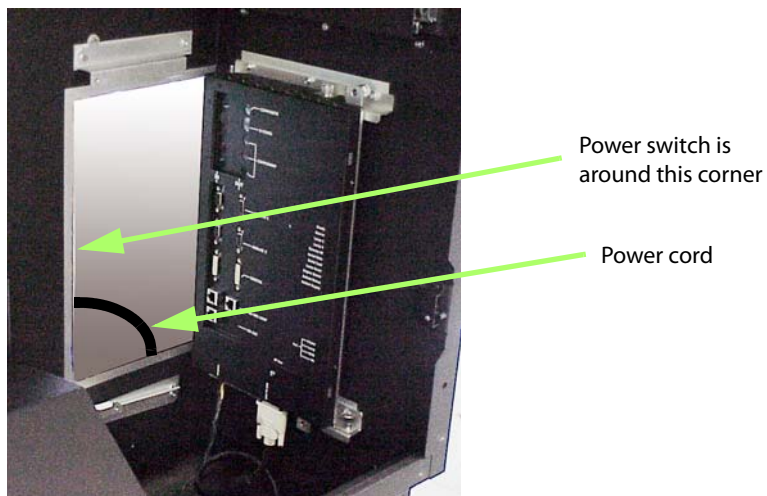
- 1 Remove the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))

**WARNING!** Failure to properly use a grounding strap can destroy sensitive electronic components in the control board.

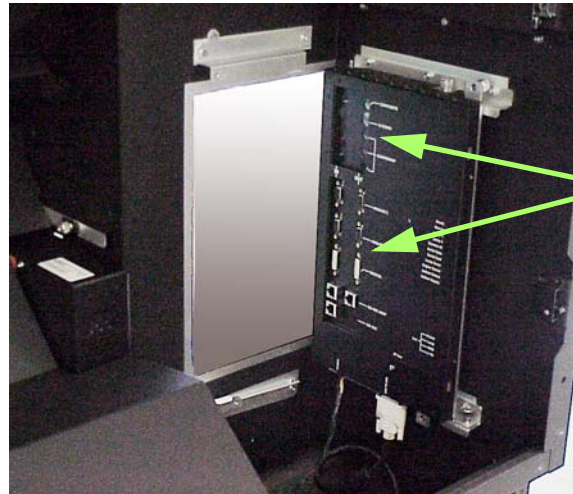
- 2 Loosen the two screws at the top and bottom of the door and swing the control board in.



- 3 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.

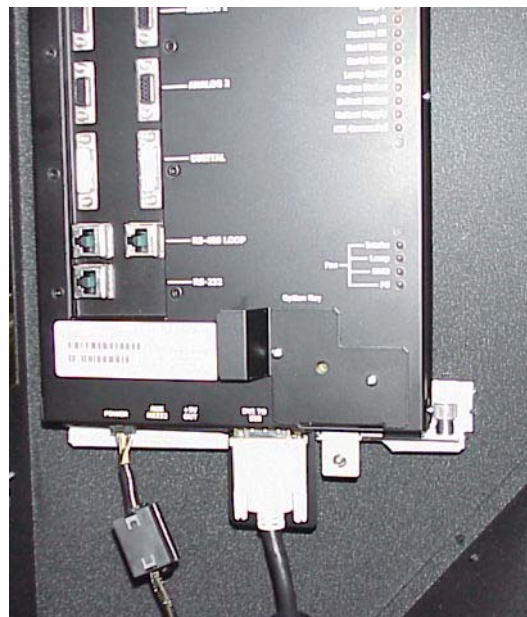


- 4** You should see the connectors of the control board to the right of the opening. Remove all the input and output cables.



Remove all input/output cables from the control board

- 5 Lift up and remove the control board from its pin hinges.
- 6 Remove cables from the bottom of the control board. You can do this before or after you lift it off its hinges.



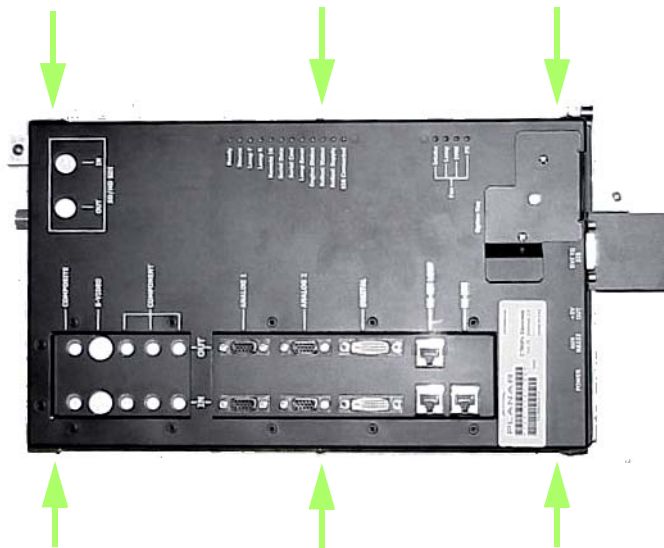
## 1 Gain Access: Remove Screen

### 1.3 Remove/Replace Control Board

#### 1.3.1 Gain Access: Open Control Board

## 1.3.1 Gain Access: Open Control Board

- 1 Remove the control board from the c50/c67R. ([Task 1.3 Remove/Replace Control Board on page 74](#))
- 2 Remove six screws from the sides of the cover.



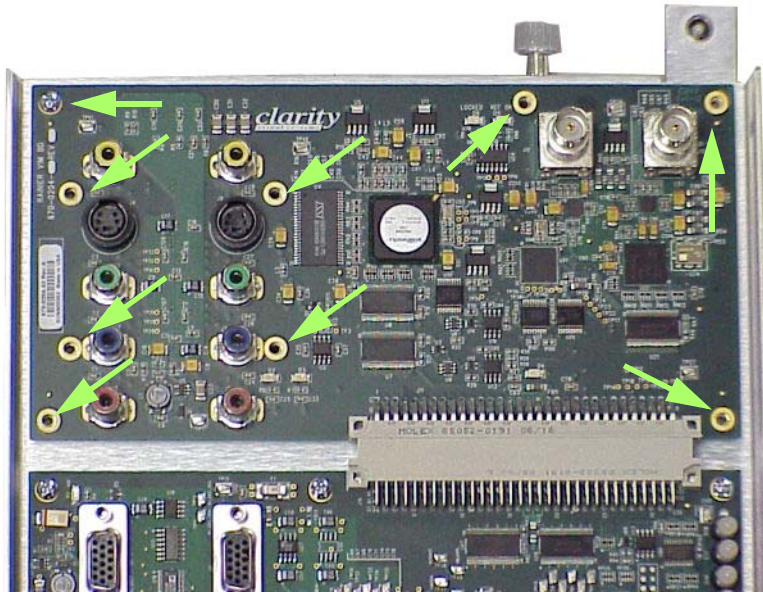
- 3 Carefully remove the DVI connector EMI (Electromagnetic Interference) shield without tearing the tape to which it is attached. Use a 3/16" nut driver.



- 4 Remove the cover. It is a snug fit so it may be difficult to remove.

### 1.3.1.1 Remove/Replace Video Input Module (VIM)

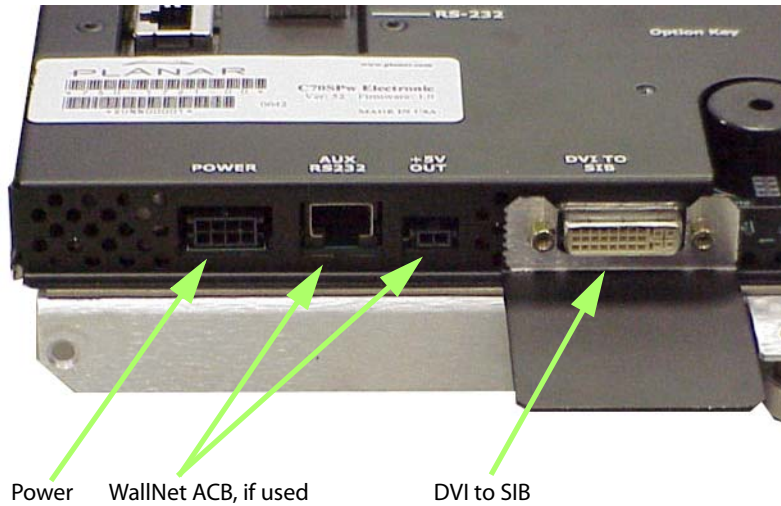
- 1 Open the control board. (See [Task 1.3.1 Gain Access: Open Control Board on page 76](#))
- 2 Remove nine screws on the VIM.



- 3 Pull the VIM away from the control board and lift it out.
- 4 Reverse this procedure to install a new VIM.

## 1.3.2 Replace the Control Board

- 1 Connect the cables on the bottom of the control board. These are the power and data cables that connect the control board to the rest of the display.



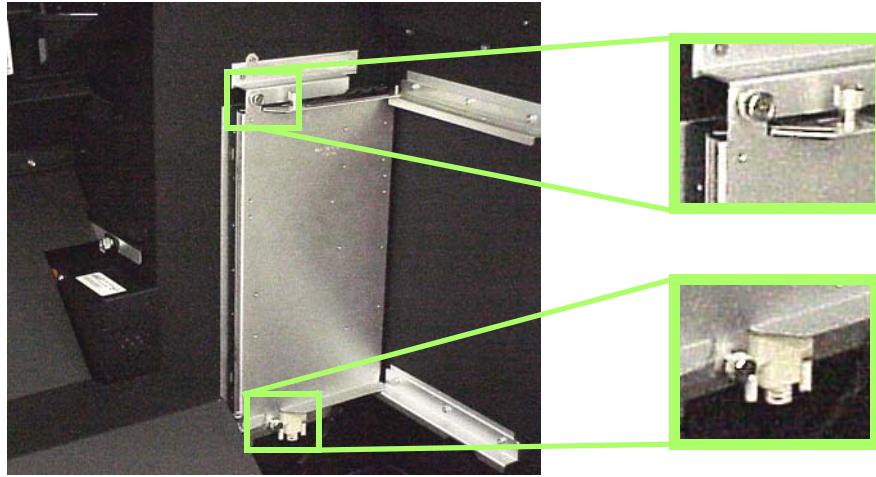
- 2 Set the control board on the pins, starting with the bottom pin. The bottom pin is a little longer.



Control Board hinge,  
bottom pin

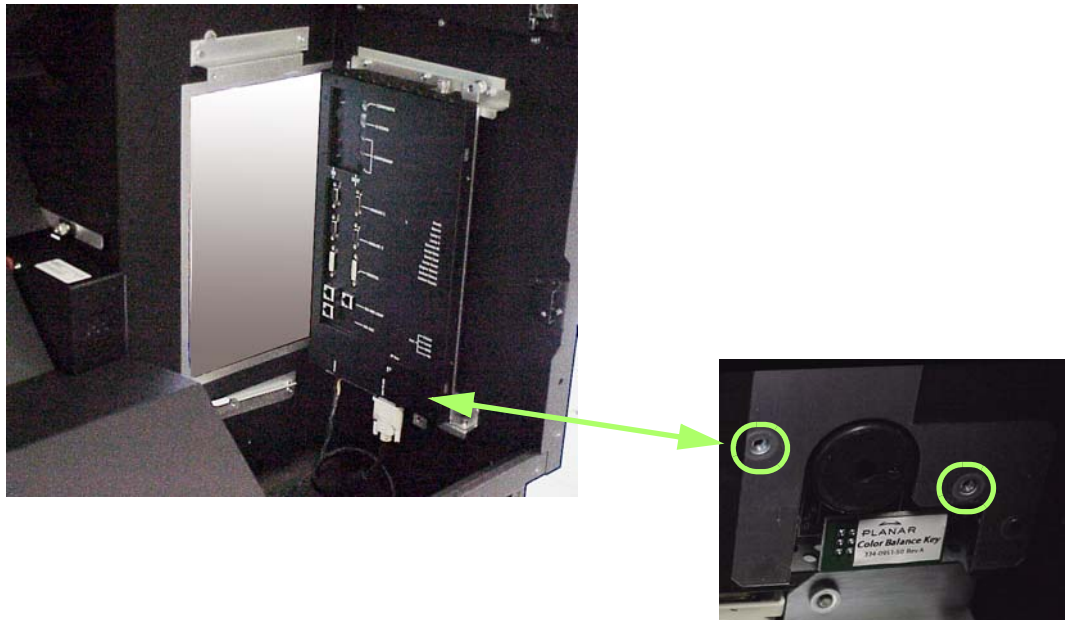
- 3 Lift the control board a little bit and set it on the top pin.
- 4 Install the input/output cables and power cables as they were before.

- 5** Close the control board door and tighten the screws at the top and bottom of the control board.



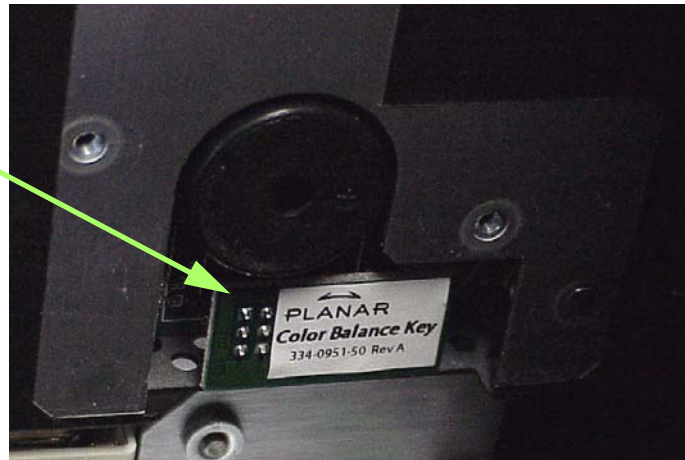
## 1.4 Remove/Replace Option Key

- 1 Open or remove the screen. (See [Task 1 Gain Access: Remove Screen on page 67](#))
- 2 Loosen the two screws at the top and bottom of the door and swing the control board in.
- 3 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 4 Remove the two screws on the small plate at the bottom of the control board.



- 5 If you have an old Option Key, remove it from the control board.
- 6 Remove the new Option Key from its shipping pouch and anti-static bag. Be sure you are grounded.

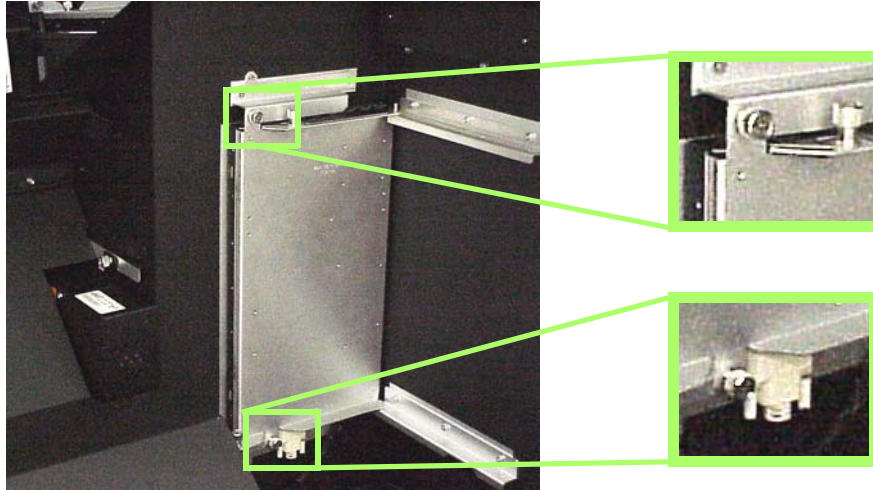
- 7 The Option Key has six pins. Plug the key into the socket on the control board. Be sure all six pins go in. If only one row of pins is connected, the whole display may not function.



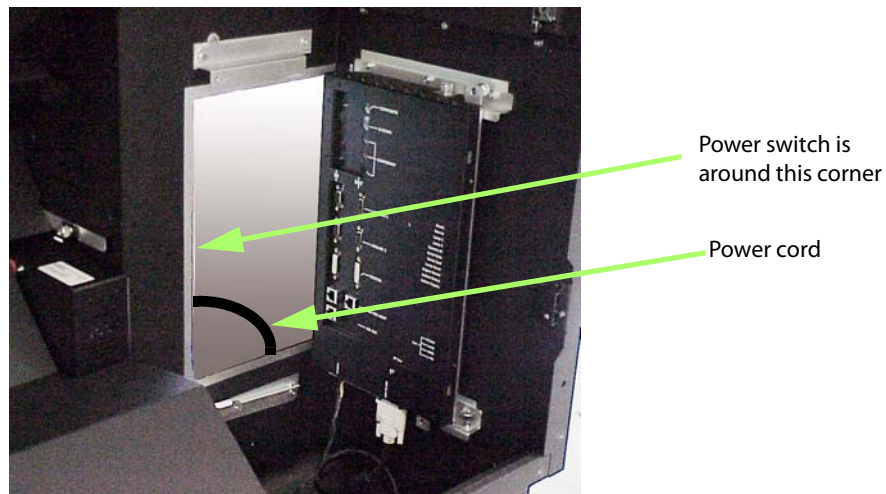
- 8 Using the two screws you set aside earlier, reinstall the Option Key cover plate.
- 9 Reinstall the power cord.
- 10 Close the control board door and tighten the screws at the top and bottom of the control board.

## 1.5 Gain Access: Open Light Shield

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Open the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.



- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.



- 5 Lift on both sides of the light shield at the same time. The air filter side has a captive spring pin that holds the light shield in place. A pressurized hinge on the front left side keeps the light shield in place once it's lifted it up.



| Where to go from here                                             |
|-------------------------------------------------------------------|
| <a href="#">Task 1.5.1 Remove/Replace Lamp on page 84</a>         |
| <a href="#">Task 1.5.2 Remove Power Supply Module on page 90</a>  |
| <a href="#">Task 1.5.3 Replace Power Supply Module on page 92</a> |
| <a href="#">Task 1.5.4 Remove the Lamp Ballast on page 93</a>     |
| <a href="#">Task 1.5.5 Remove the Optical Engine on page 97</a>   |
| <b>When you have completed the tasks, return here</b>             |

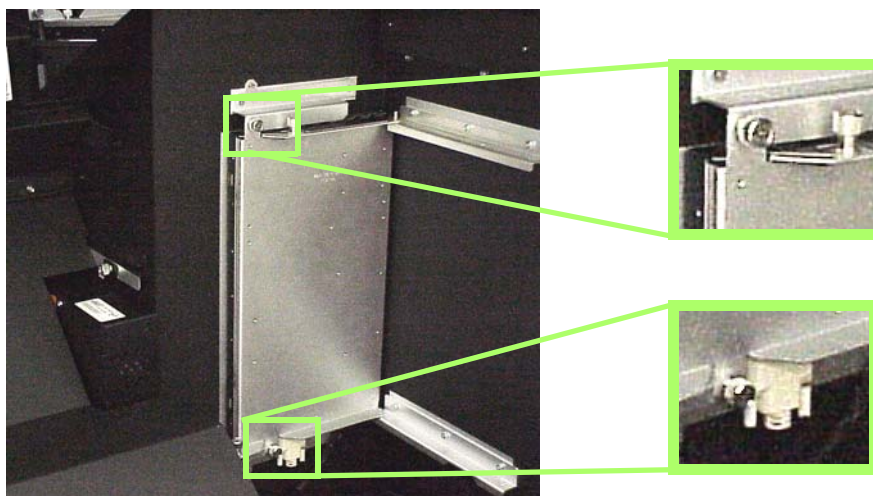
## 1.5.1 Remove/Replace Lamp

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.

**WARNING!** Never remove a lamp that is still lit.

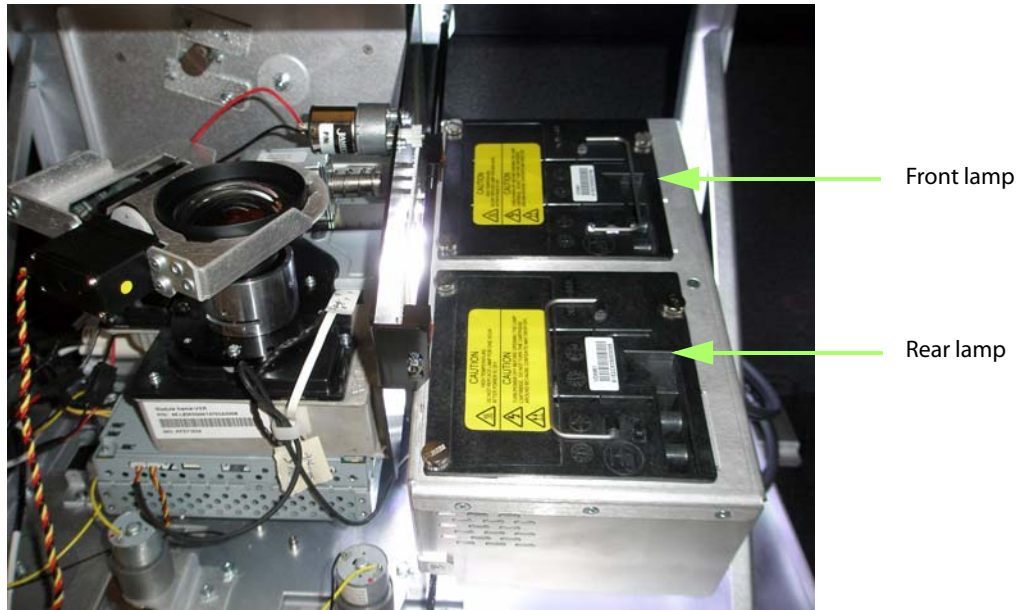
**Caution:** In the dual-lamp system, it is possible to remove and replace the lamp that is not being used while the other lamp is on. Be careful. Use UV protective eye wear. Also, be aware that lamps are very hot and can stay hot for some time after they are turned off.

- 2 Open the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.



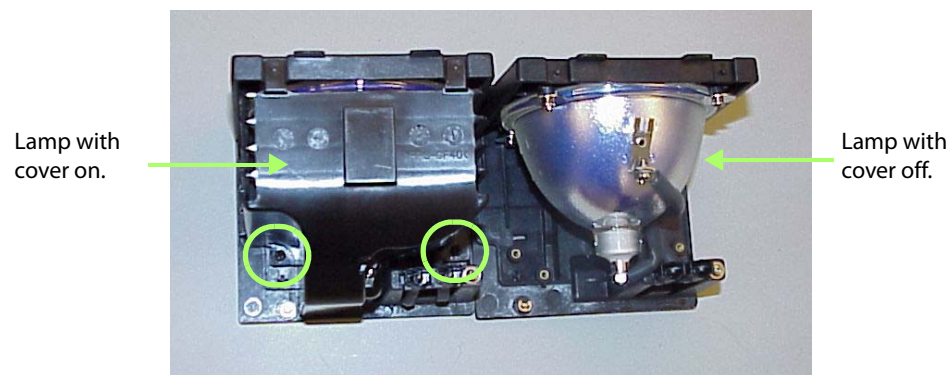
- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 If you have a dual-lamp system and want to change the front lamp, remove the three thumb screws and bracket above the lamps.

- 7 Loosen the three captive thumb screws on top of the lamp. The picture shows two lamps in the dual-lamp system. Your system may only have one.



**Note:** In a 150W system, captive screws are facing the rear of the chassis. In a 120W system, the screws are on the top.

- 8 Lift the wire handle and pull the lamp straight up and out.
- 9 Remove the new lamp from its packaging.
- 10 Remove the two screws that secure the plastic cover over the lamp and then lift off the cover.



- 11 Plug the new lamp into this space, pushing it all the way down. Tighten the three screws finger tight.

**Note:** If the lamp is not pushed all the way down, the light path will not be correct. This may cause a poor picture.

**Note:** If you have a dual-lamp system, make sure the alignment tabs on the lamp in position are seated in the slots.

**12** Reinstall the power cord and turn the unit on.

**13** Close the light shield.

**14** Reset the lamp hours. (See [Task 1.5.1.1 Reset the Lamp Hours on page 86](#))

## 1.5.1.1 Reset the Lamp Hours

After you put in a new lamp, reset the timer for that lamp.

**Note:** Why reset lamp hours? This is for your information and your records only. It is not required for operation or for warranty replacement. After the new lamp is lit, use the remote control to open the HOURS (DIAGNOSTICS > HOURS) menu. Select the appropriate RESET LAMP HOURS line and press ENTER to reset the lamp hours to zero.

| Diagnostics        | PLANAR |
|--------------------|--------|
| Unit Status        | ▶      |
| Serial Port Status | ▶      |
| Test Patterns      | ▶      |
| Setup Summary      | ▶      |
| Lamp Ballast       | ▶      |
| Hours              | ▶      |

If you have a single-lamp system, you will see only one lamp listed in this menu.

| Hours                    | PLANAR   |
|--------------------------|----------|
| System Time              | 00636:45 |
| Running Time             | 00532:00 |
| Lamp - Front             | 00301:03 |
| Lamp - Rear              | 00230:57 |
| Reset Lamp Hours - Front |          |
| Reset Lamp Hours - Rear  |          |

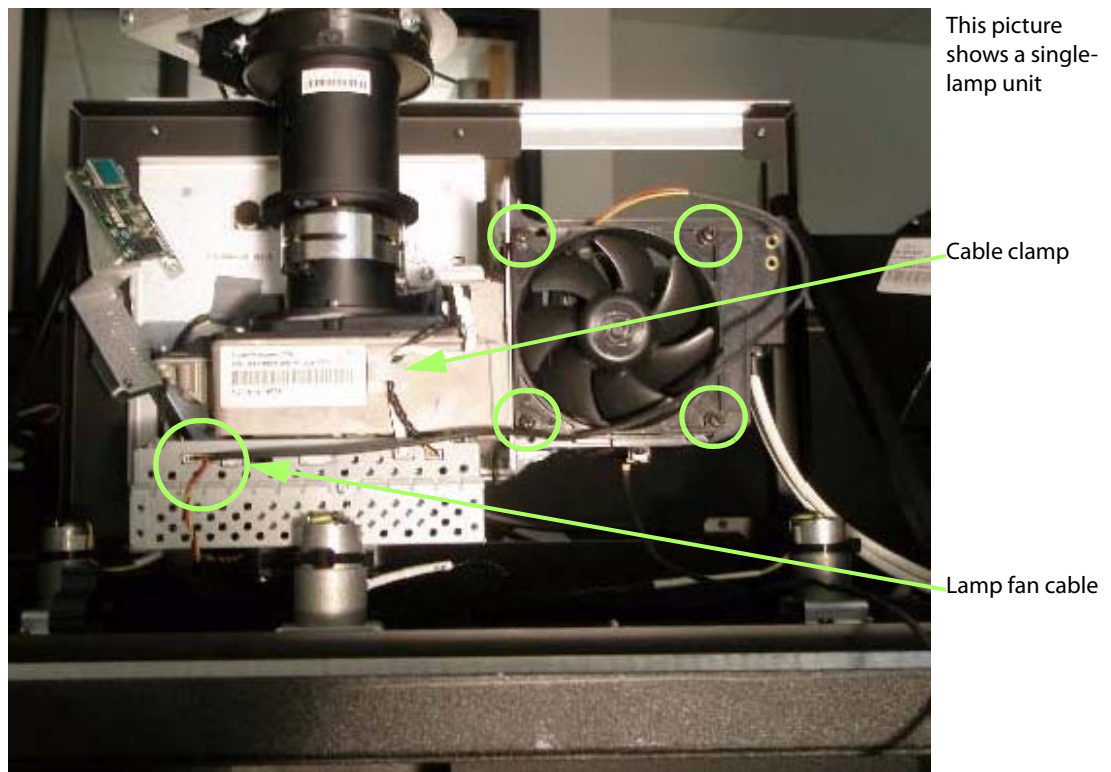
## 1.5.1.2 Color Balance the Wall

If you replace a lamp, you should color balance the wall again. This can be done manually, or with the (optional) Auto Color Balance system.

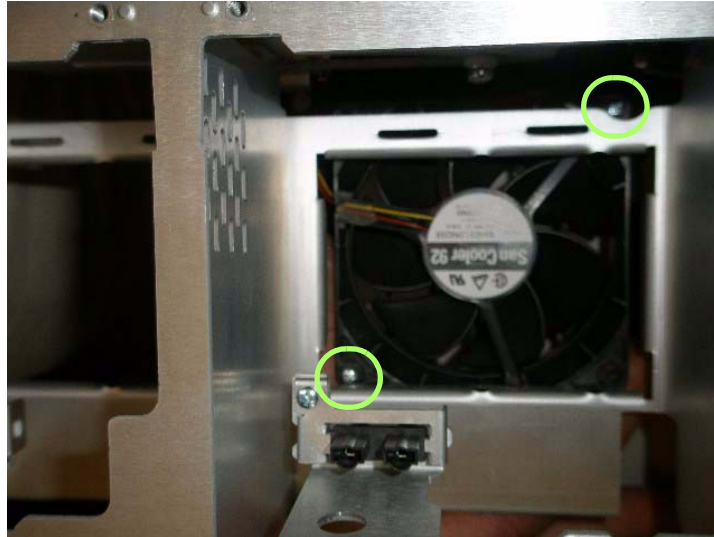
- For detailed Manual Color Balance instructions, see the c50/c67R Installation & Configuration Guide.
- For Auto Color Balance instructions, see the c50/c67R Installation & Configuration Guide and the WallNet User Manual.

### 1.5.1.3 Remove/Replace Lamp Fan

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Open the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.
- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 Remove the optical engine. ([Task 1.5.5 Remove the Optical Engine on page 97](#))
- 7 Remove the lamp that is in the active position. ([Task 1.5.1 Remove/Replace Lamp on page 84](#))
- 8 Remove the lamp fan cable from the cable clamp.
- 9 Disconnect the lamp fan cable from the engine.



- 10** Do one of the following:
  - For a single-lamp system, go to step **11**.
  - For a dual-lamp system, go to step **12**.
- 11** Remove the four screws that secure the lamp fan and lift it out. Go to step **14**.
- 12** Remove the two screws from the fan that secure it.

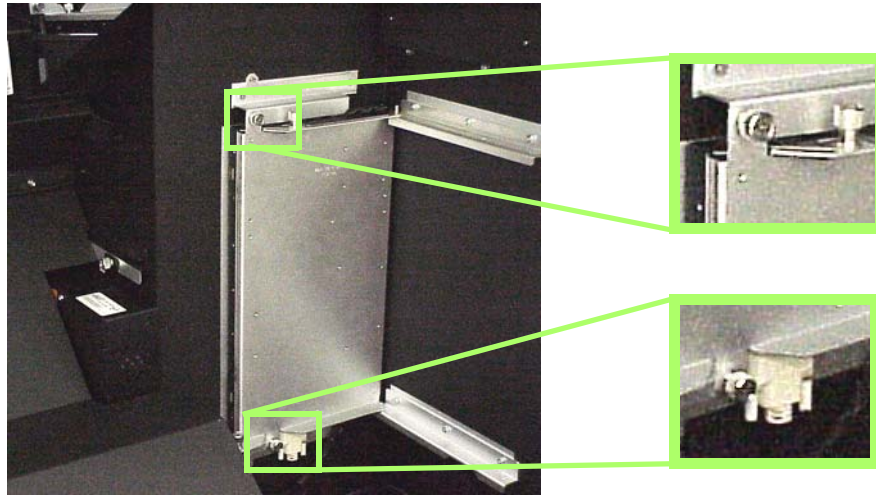


This picture shows a dual-lamp unit as seen from the top.

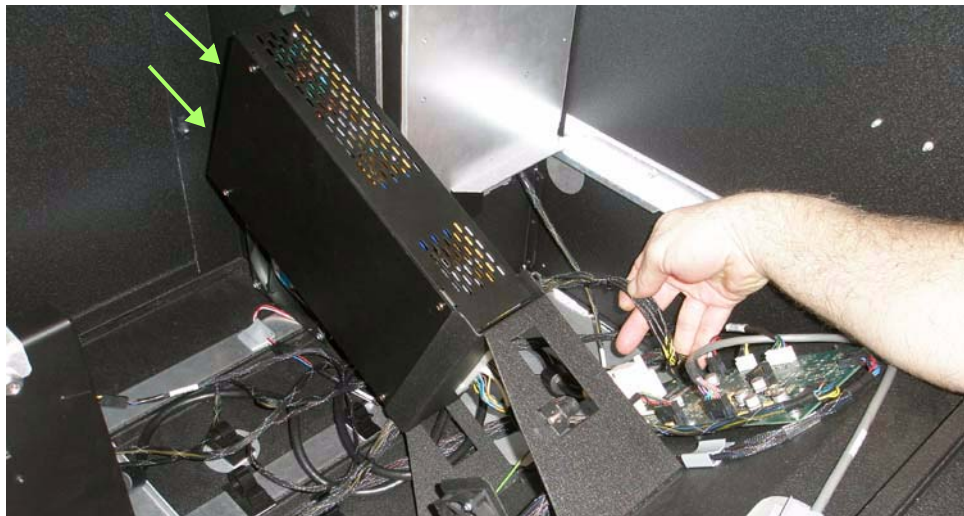
- 13** Slide the fan to the side to remove it.
- 14** Insert the new lamp fan in place and secure it with the correct number of screws (4 for a single-lamp system or 2 for a dual-lamp system).
- 15** Insert the lamp fan cable and secure it with the cable clamp. Make sure the label faces towards the lamp and the cable faces the rear of the display.

## 1.5.2 Remove Power Supply Module

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Open the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.



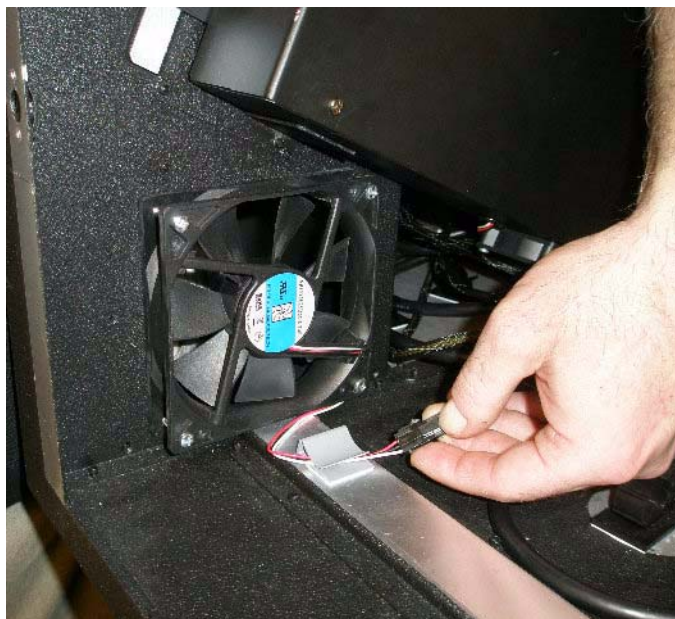
- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 Loosen the captive screws at the top of the power supply module.



- 7 Pull the power supply module out from the “blind mate” connector. There are no cables to disconnect.

## 1.5.2.1 Remove/Replace Intake Fan

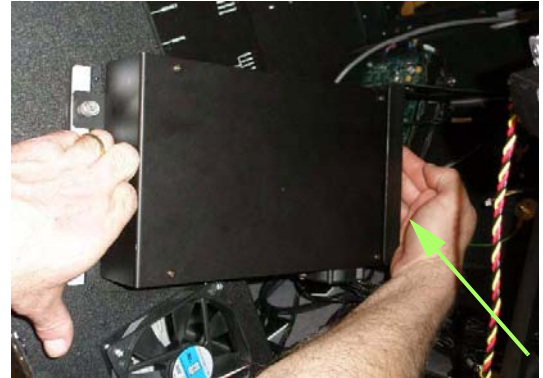
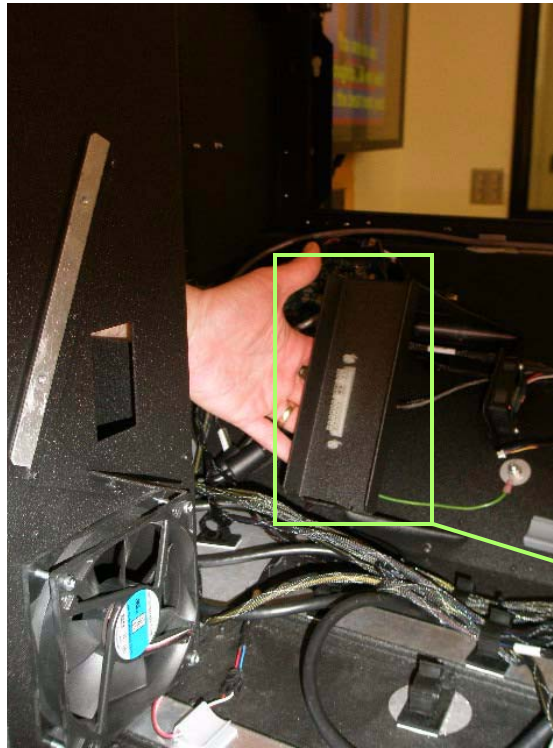
- 1 With the power supply module removed, disconnect the intake fan cable.



- 2 Remove the four screws that secure the intake fan and remove it.
- 3 Place the new intake fan in position, with the label facing inward, and secure it with four screws.
- 4 Plug back in the intake fan cable.

## 1.5.3 Replace Power Supply Module

- 1 Align the power supply module and lower it into place. The connector on the bottom is a "blind-mate" connector. To make sure it is engaged, push up from the bottom below the connector to make sure it is securely seated.



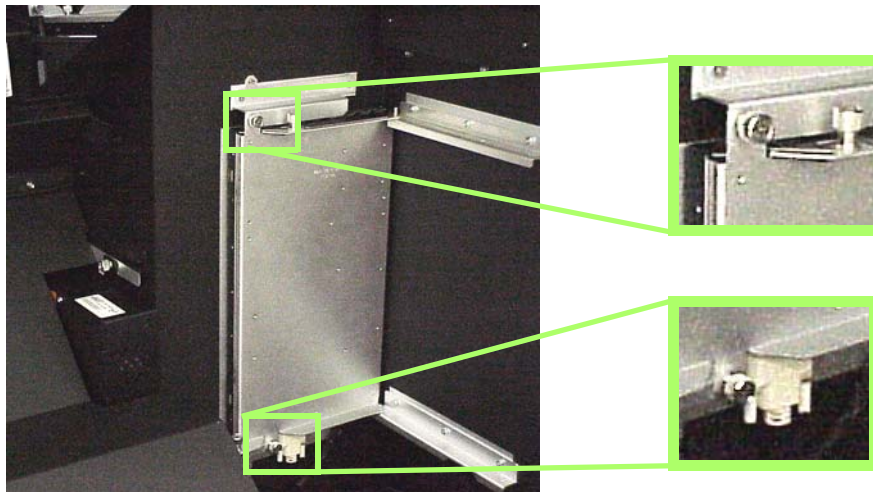
Slide the bottom of the power supply module into this "blind-mate" connector.

**Note:** These pictures are shown from the front.

- 2 Screw in the two captive retaining screws. Finger tight is usually enough.
- 3 Close the light shield.
- 4 Close the control board door and tighten the two screws at the top and bottom of the door.

## 1.5.4 Remove the Lamp Ballast

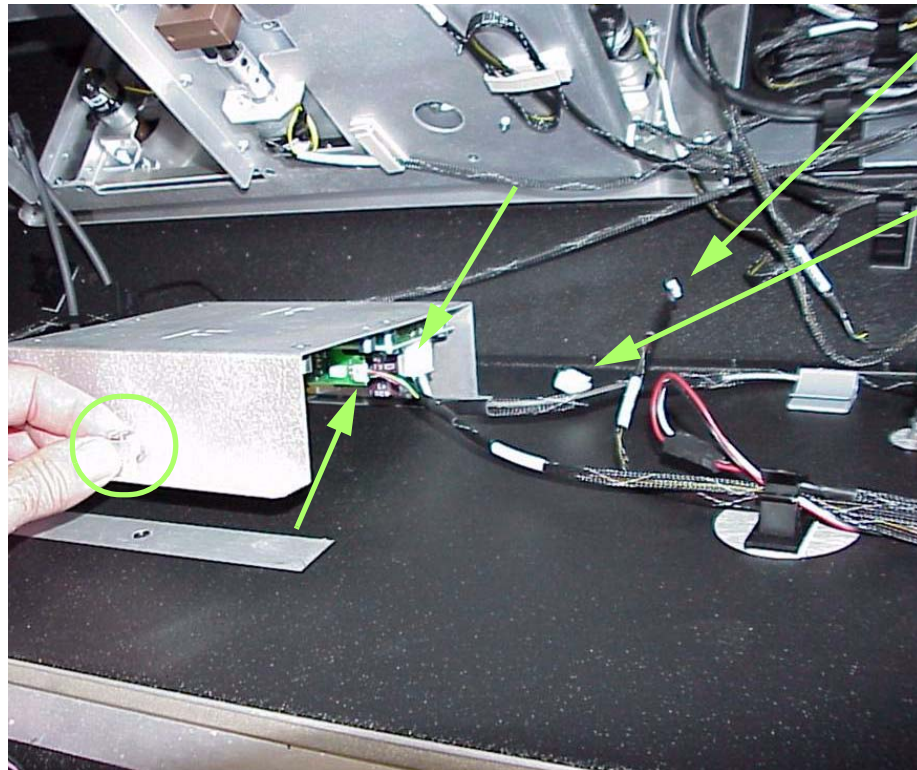
- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Open the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.



- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 Unplug the lamp cable(s).



- 7 Disconnect the power and control cables from the ballast module. (For a dual-lamp system, there would be a second set of these connectors.)



If you have a dual-lamp system, these connectors would be for the second ballast.

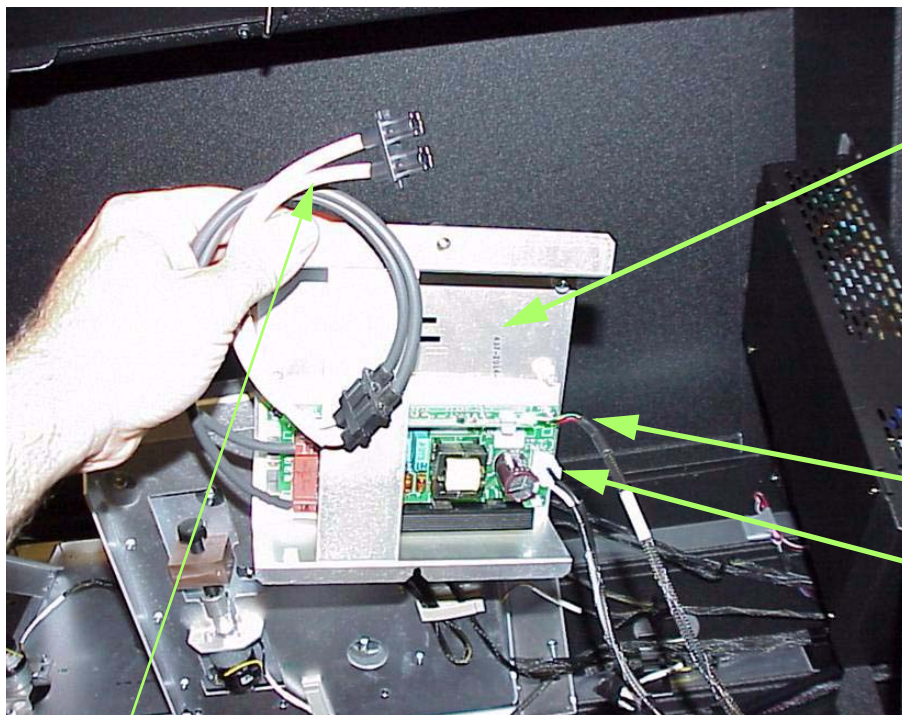
- 8 Unscrew the captive screw on the top of the ballast module.

1 Gain Access: Remove Screen

1.5 Gain Access: Open Light Shield

1.5.4 Remove the Lamp Ballast

- 9** Lift the power, control and HV (High-Voltage) cables from the cable clip(s).



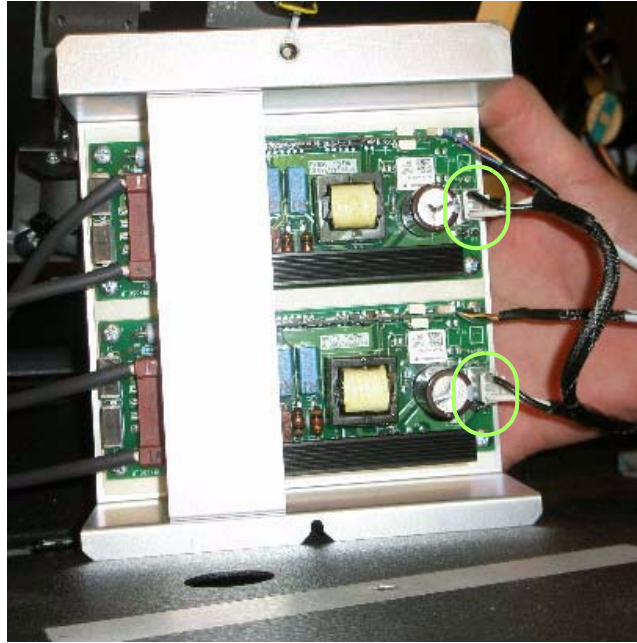
HV cable

Control cable

Power cable

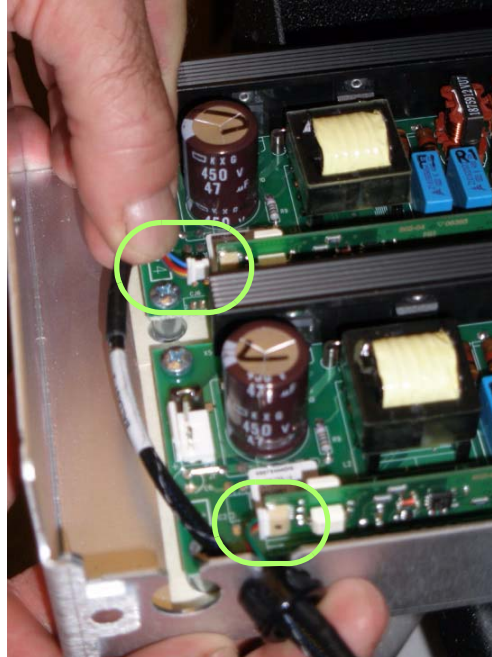
- 10** Lift the ballast module out, but not far. It is still connected to cables.

- 11 Remove the HV cable (black and white wires in a cable). For a dual-lamp system, you should do this for both ballasts.



This picture shows a dual-lamp ballast.

- 12 Remove the smaller control cable. For a dual-lamp system, you should do this for both ballasts.



**Caution:** When removing the control cable, don't pull on the wires. Use your fingernail to pull up on the white female connector.

## 1.5.4.1 Replace the Lamp Ballast

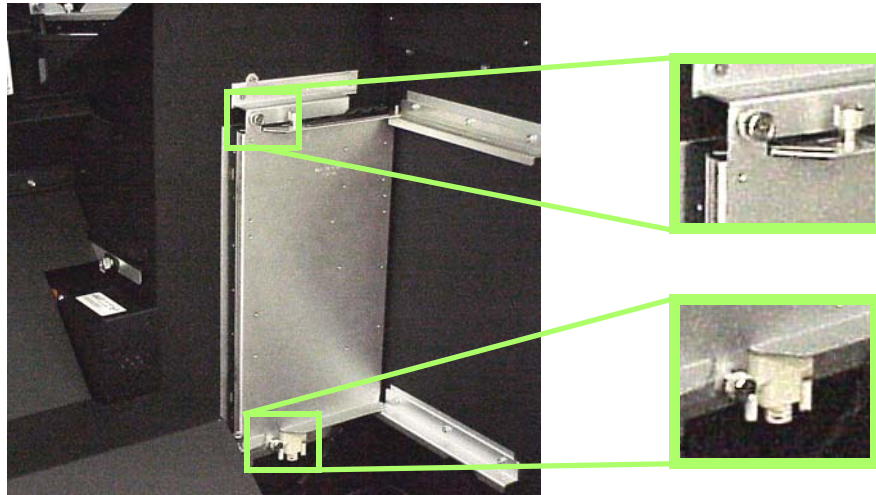
- 1 Connect the control, power and HV cables, as well as the smaller control cable to the ballast. Each cable is labeled. (For a dual-lamp system, there would be a second set of these connectors.)

**Caution:** For dual-lamp systems Ballast No. 1 is the upper ballast, and Lamp No. 1 is the front lamp. It is important to get this correct. Otherwise, the control board will turn on the wrong lamp.

- 2 Lower the ballast module into place. Tighten the captive screw.
- 3 Connect the lamp cable(s).

## 1.5.5 Remove the Optical Engine

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Remove the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.



- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 Disconnect cables from the optical engine as described in the following substeps: **a-e** (**a-g** for a dual-lamp system).

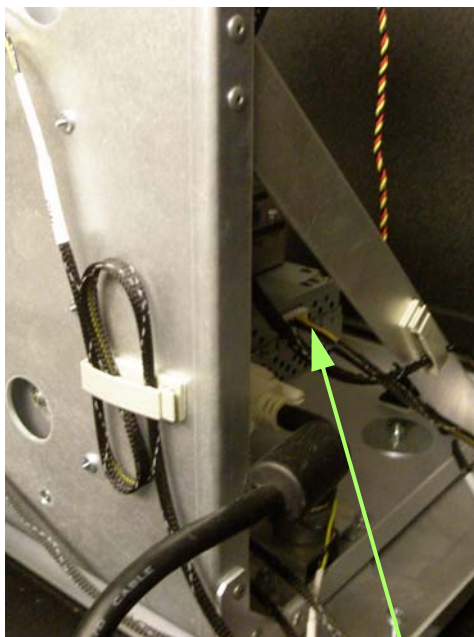
**Note:** It does *not* help to remove the lamp; the engine is still the same size and you still have to disconnect the same number of cables.

1 Gain Access: Remove Screen

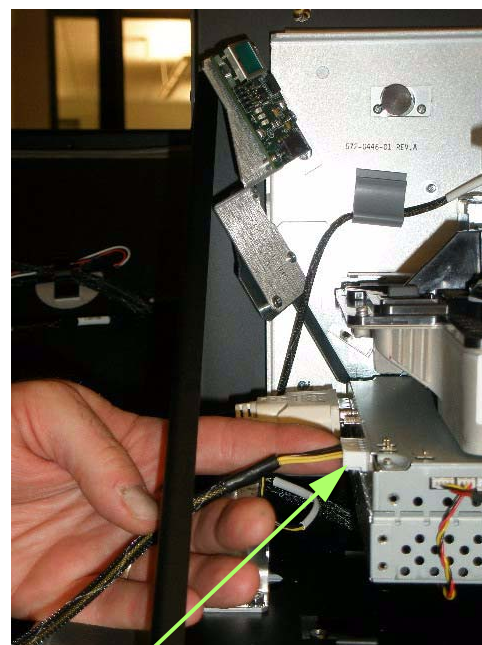
1.5 Gain Access: Open Light Shield

1.5.5 Remove the Optical Engine

**a** Disconnect the engine power cable from the engine formatter board.

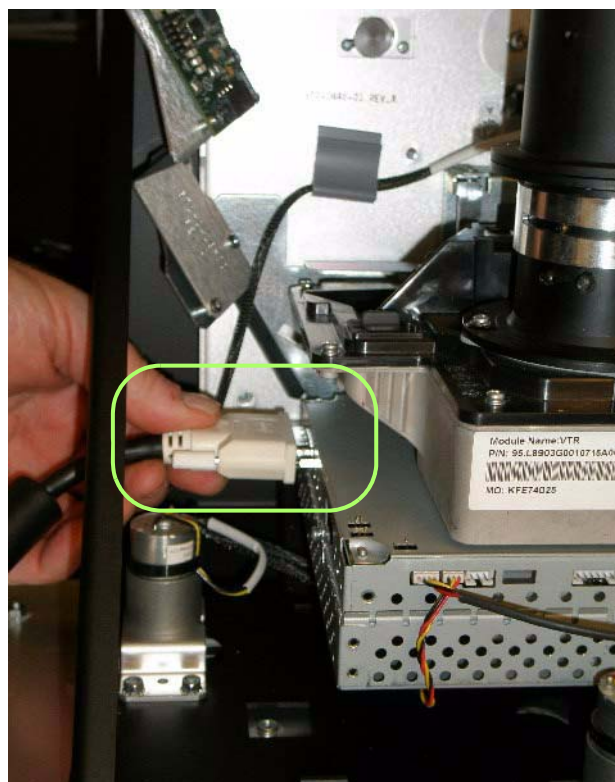


Front view



Rear view

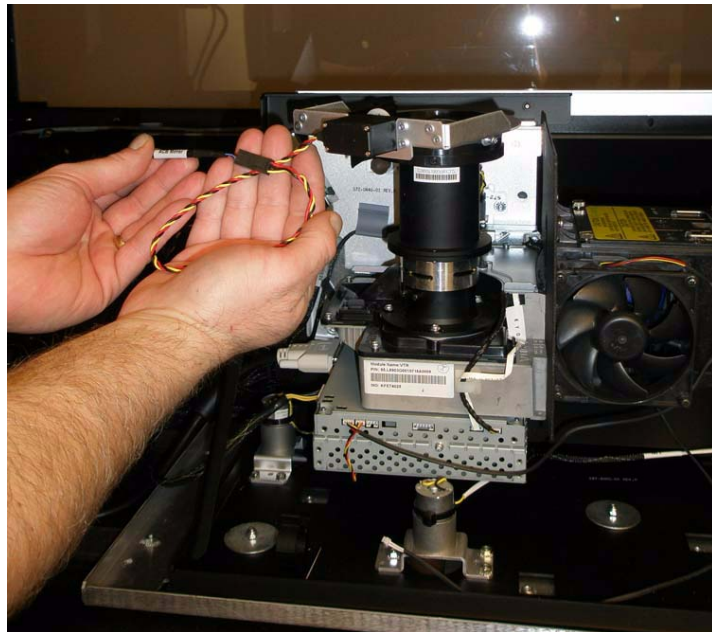
**b** Disconnect the DVI cable from the engine formatter board.



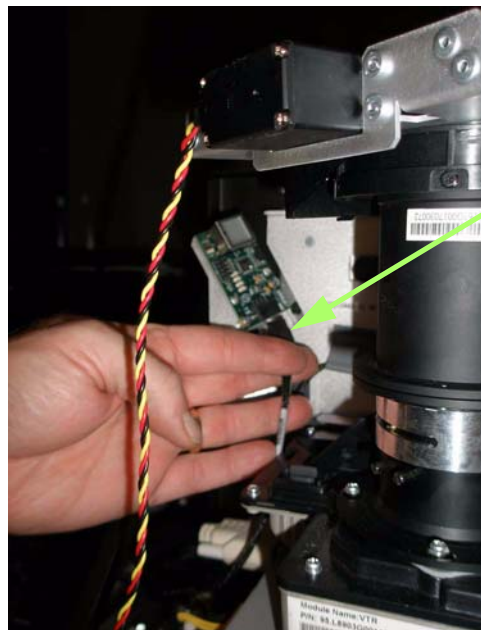
This picture  
is shown  
from the rear

- c** Disconnect the ACB motor cable from the ACB mirror cable.

This picture  
is shown  
from the rear



- d** Disconnect the 2C color sensor cable from the ACB board.



This picture is  
shown from  
the rear

2C color  
sensor cable

1 Gain Access: Remove Screen

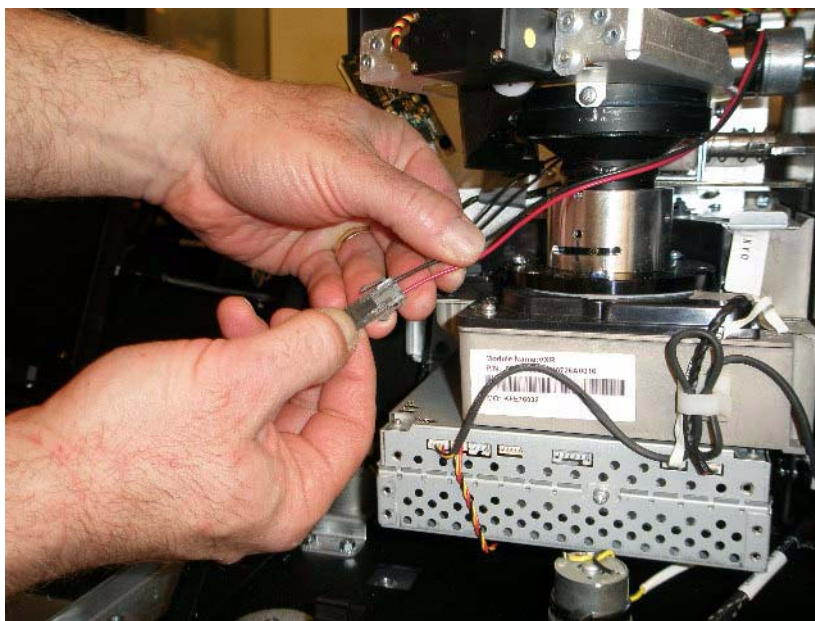
1.5 Gain Access: Open Light Shield

1.5.5 Remove the Optical Engine

**e** Disconnect the lamp cable(s).



**f** If this is a dual-lamp system, disconnect the lamp switcher motor cable.

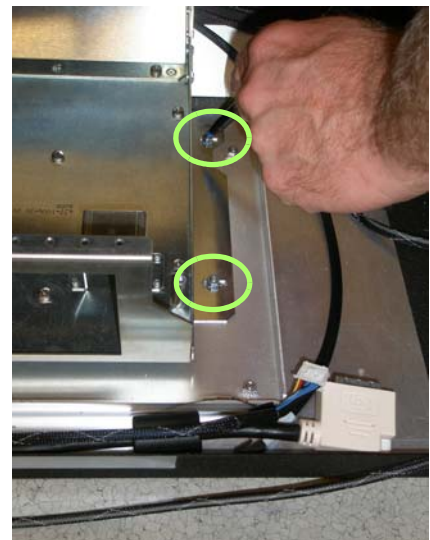
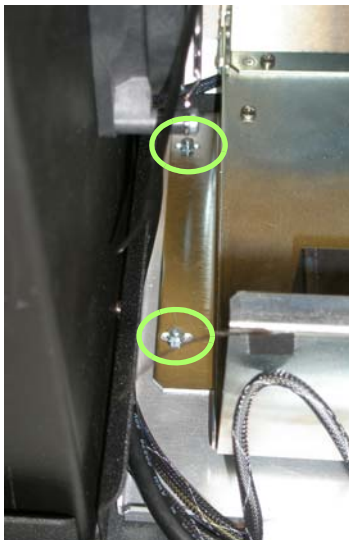


This picture  
is shown  
from the rear

- g** If this is a dual-lamp system, disconnect the solenoid cable at the top of the optical engine.



- 7** Remove the engine mount motor control cable from the SIB.
- 8** Remove the four 7mm nuts and tooth washers on the optical engine carrier. Before removing these, use a pen to mark the slot in which the nut is installed. This will save time when the optical engine is realigned.



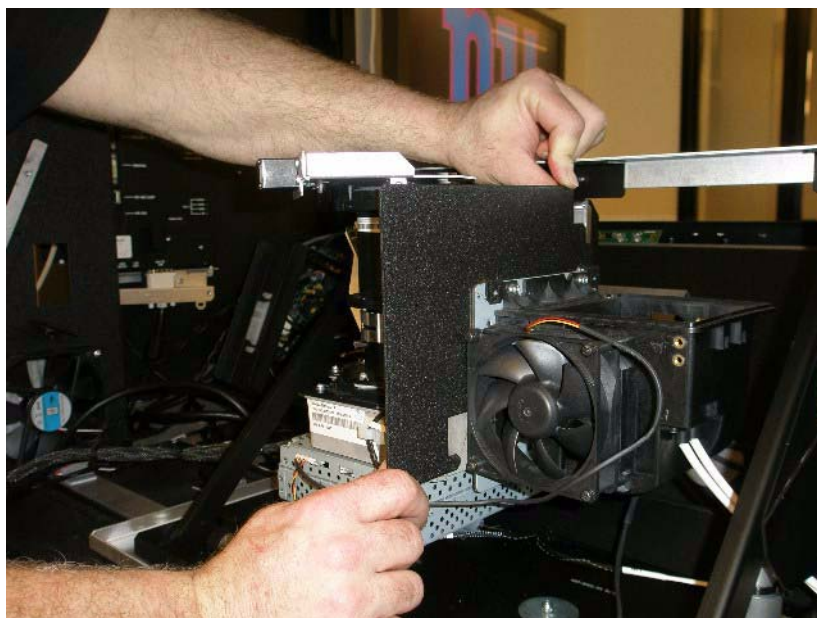
- 9** Remove the engine carrier from the engine carrier housing.

1 Gain Access: Remove Screen

1.5 Gain Access: Open Light Shield

1.5.5 Remove the Optical Engine

- 10** Remove the engine carrier light shield with the tabs over the top of the lamp carrier.

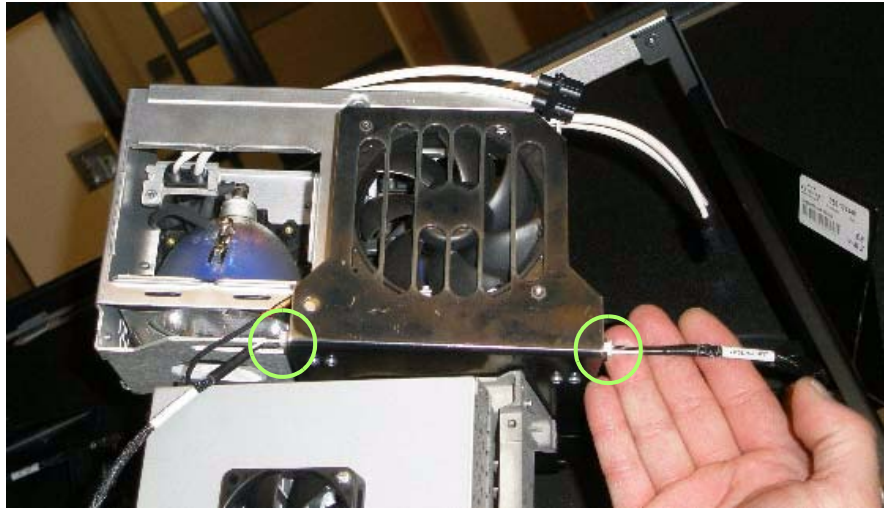


- 11** Remove the three #2 Phillips screws from the optical engine and then lift it up *slowly and carefully*. Be sure all cables (except the limit switch cables for a dual-lamp system) are removed before you lift it all the way out.



**Note:** You will need a long #2 Phillips magnetic screwdriver to remove the screw on the bottom right side.

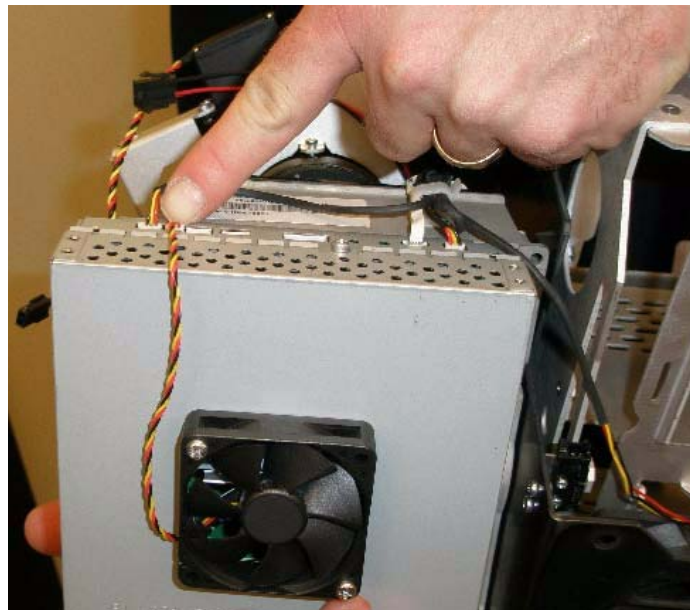
- 12 If this is a dual-lamp system, turn over the optical engine and disconnect the limit switch cables from the front and rear of the lamp switching mechanism.



**Note:** These cables are captured, so you will need to press in on the tabs to remove them.

### 1.5.5.1 Remove/Replace DMD Fan

- 1 With the optical engine removed, disconnect the DMD fan cable.

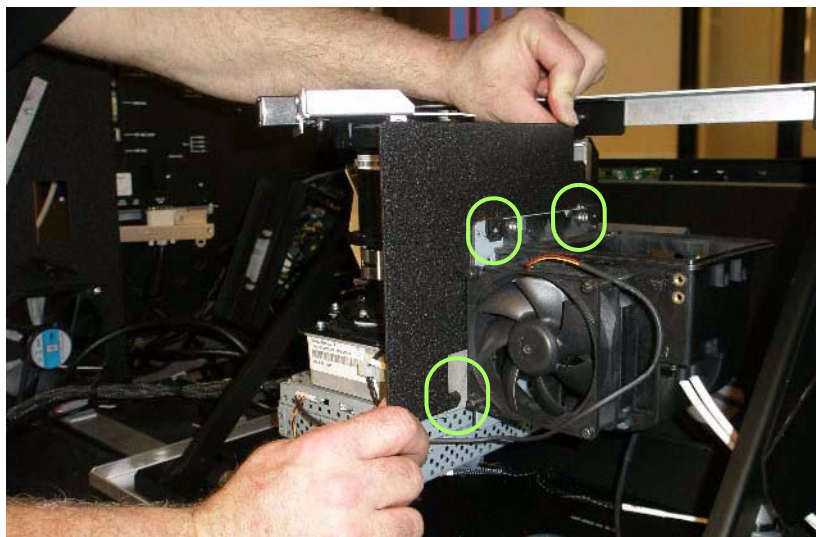


- 2 Remove the two screws that secure the DMD fan and remove it.
- 3 Place the new DMD fan in position and secure it with two screws.
- 4 Plug back in the DMD fan cable.

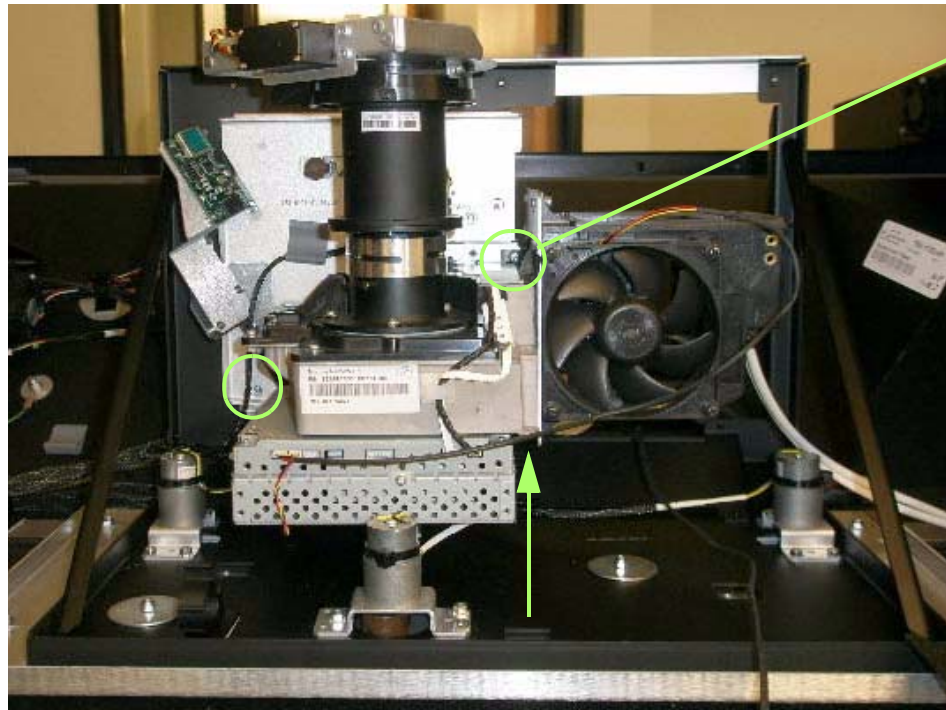
## 1.5.5.2 Replace the Optical Engine

**Note:** When you receive a new optical engine, you also receive a new color sensor board. If you are replacing the optical engine, you also need to remove and replace the color sensor board. ([Task 1.7 Remove/Replace Color Sensor on page 108](#))

- 1 If you have dual-lamp system, reconnect the limit switch cables to the front and rear of the lamp switching mechanism.
- 2 Install the engine carrier light shield with the tabs over the top of the lamp carrier.



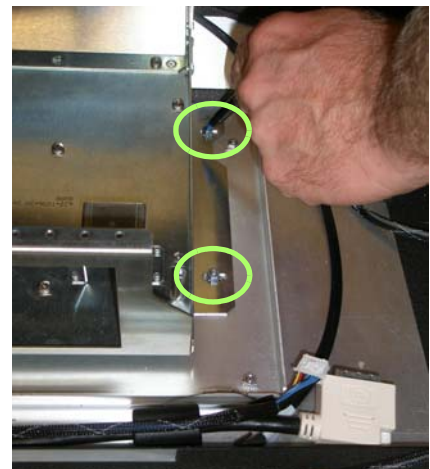
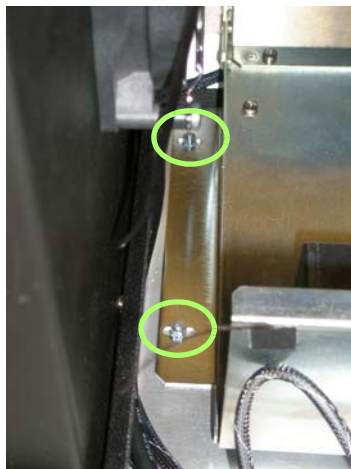
- 3 Lower the optical engine into place.



This picture shows a single-lamp unit. For a dual-lamp unit, this screw will be hard to see.

**Note:** This picture is shown from the rear.

- 4 Loosely tighten the screw in the lower right corner.
- 5 Tighten the other two screws and then tighten the bottom screw more.
- 6 Reinstall the four 7mm nuts and tooth washers to secure the optical engine carrier to the chassis. Try to place them in the slot you previously marked.



**Note:** This picture is shown from the rear.

- 7 Replace all the connectors, following previous pictures.

- 8 Place cables back into the cable clamps.

**Note:** Because the 50" and 67" units use the same cable harness, there will be extra length in the 50" units.

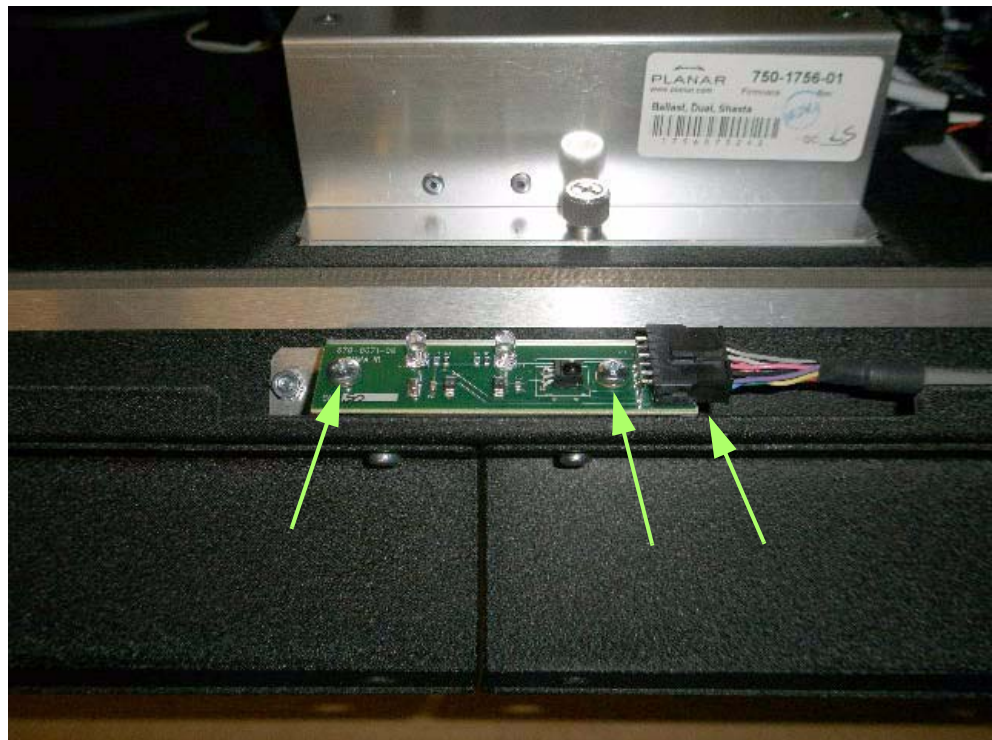
- 9 Replace the color sensor board. ([Task 1.7 Remove/Replace Color Sensor on page 108](#))

**Note:** Color sensor boards are calibrated for the engine with which they are mated.

- 10 If this is the end of service work, lower the light shield and replace the screen. Then check and adjust image alignment. Always check Engine Alignment after replacing or even moving the optical engine. See the "Engine Alignment" section in the c50/c67R Installation & Configuration Guide for more information.

## 1.6 Remove/Replace IR/LED Board

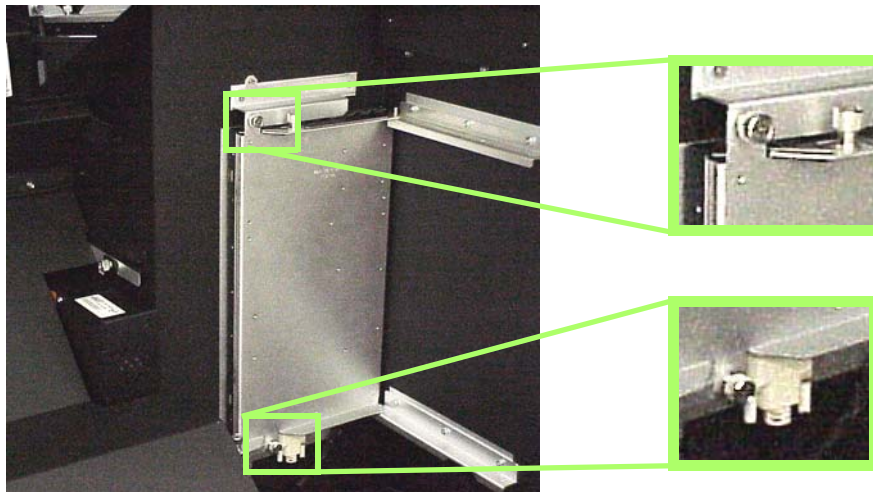
- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Remove the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 4 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 5 Disconnect the cable from the IR/LED board.



- 6 Remove the two screws holding the IR/LED board.
- 7 Place the new IR/LED board in the same place as the old one, securing it with two screws.
- 8 Connect the cable to the new board.

## 1.7 Remove/Replace Color Sensor

- 1** Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2** Remove the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3** Loosen the two screws at the top and bottom of the door and swing the control board in.



- 4** Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5** Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))

- 6 Remove the three screws on the side of the sensor assembly.



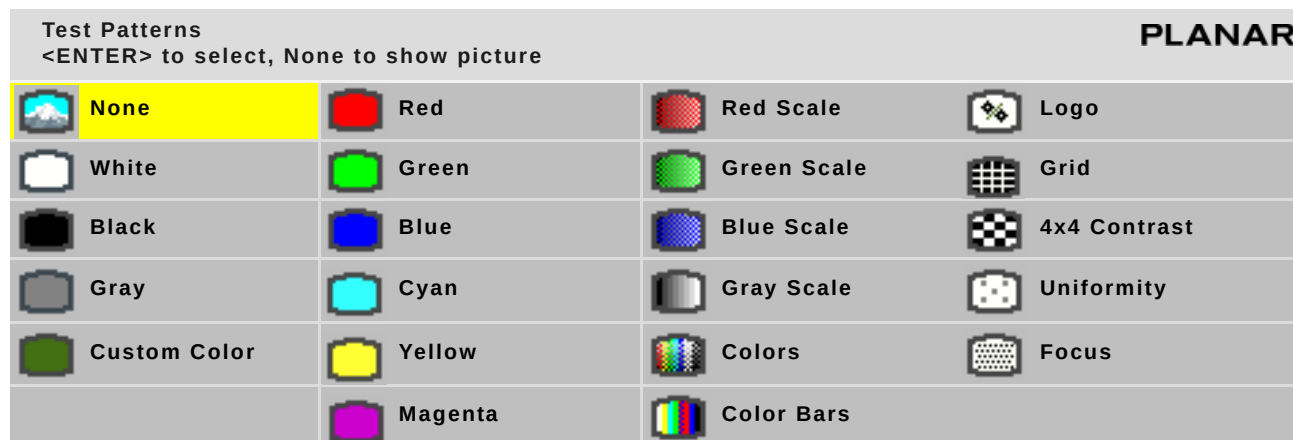
- 7 Disconnect the color sensor cable on the bottom of the sensor assembly.
- 8 Remove the ACB sensor assembly.
- 9 Put the new assembly in place.
- 10 Reconnect the color sensor cable and secure the assembly with the three screws.

**Note:** The ACB motor position value is stored on the color sensor. If you replace it, you will need to realign the ACB.

- 11 Align the ACB mirror. ([Task 1.7.1 Align ACB Mirror on page 110](#)).

## 1.7.1 Align ACB Mirror

- 1 Open the TEST PATTERNS menu. (MENU > DIAGNOSTICS > TEST PATTERNS).



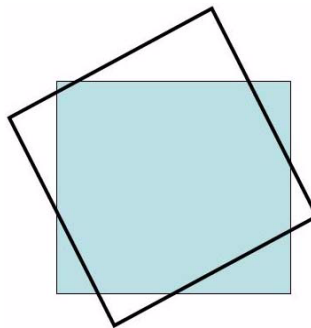
- 2 Select UNIFORMITY and press ENTER.
- 3 From the MAIN MENU, select PROGRAM INFORMATION.



- 4 With this menu open, press the following arrow keys on the remote: up, up, right, left, down. The FACTORY SETTINGS menu appears.

| Factory Settings               |                           | PLANAR |
|--------------------------------|---------------------------|--------|
| Clear Last 10 Inputs Memory    |                           |        |
| Reset to Factory Defaults      |                           |        |
| Reset System to Start Download |                           |        |
| Disable IR Remote              |                           |        |
| OEM                            |                           | CSBU   |
| <input type="checkbox"/>       | Gamma (PW181)             |        |
|                                | YPbPr Calibration         | ▶      |
|                                | Engine/Ballast Parameters | ▶      |
| ACB Mirror: Actuate or Retract |                           |        |
| ACB Mirror: Actuated Position  |                           | 30     |
| <input type="checkbox"/>       | Hide Motor Menus (c80)    |        |

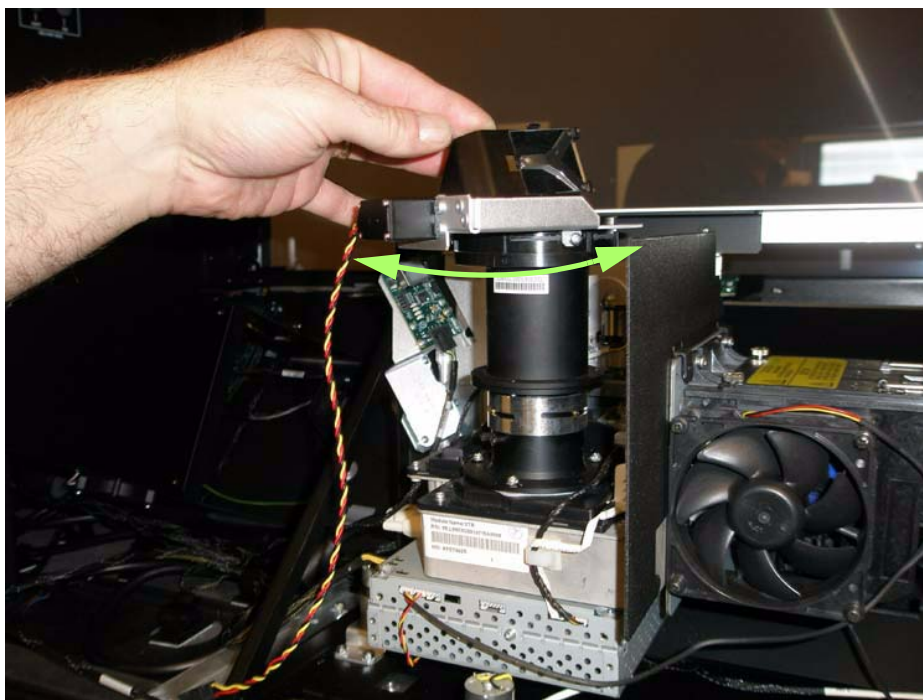
- 5 Using the arrow keys, select the ACB MIRROR: ACTUATE OR RETRACT line.
- 6 Press ENTER. This will cause the ACB mirror to flip up.
- 7 Look directly at the ACB sensor itself. Does the center square of the UNIFORMITY pattern hit the sensor chip at a diagonal angle?
- If yes, you are finished and can close the menu. This will cause the ACB mirror to return to the nominal position.
  - If no go to step 8.



The shaded blue square represents the color sensor block and the black square represents the image of the center square of the uniformity test pattern.

- 8 Select the ACB MIRROR: ACTUATED POSITION line. Use the -/+ arrow keys on the remote to adjust the mirror position until the center square is at a diagonal angle in the center of the ACB sensor. To help you better see the little squares, hold a small white paper in front of the sensor block.

- 9 If the ACB mirror is still not aligned, rotate the ACB mirror assembly left or right until the center square of the UNIFORMITY pattern hit the sensor chip at a diagonal angle.

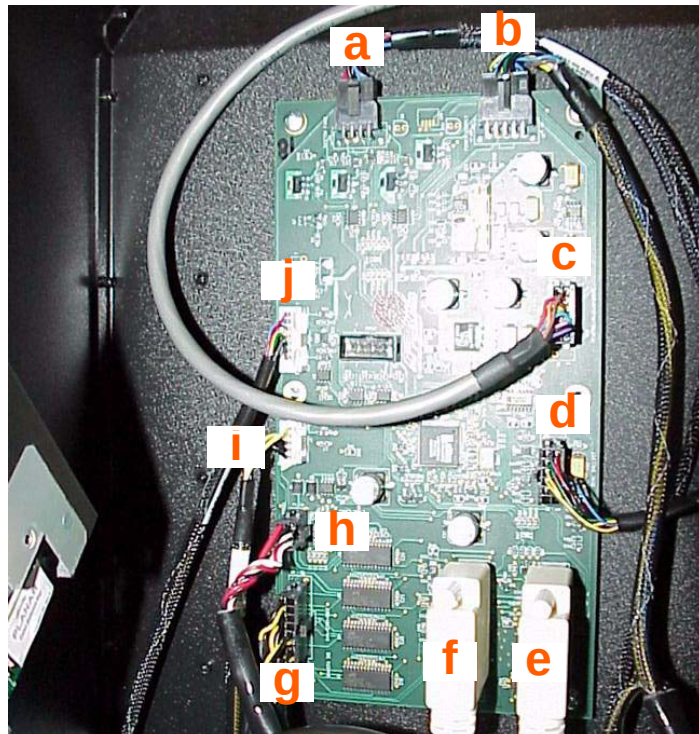


This picture shows an RP focal lens. An RX lens is shorter.

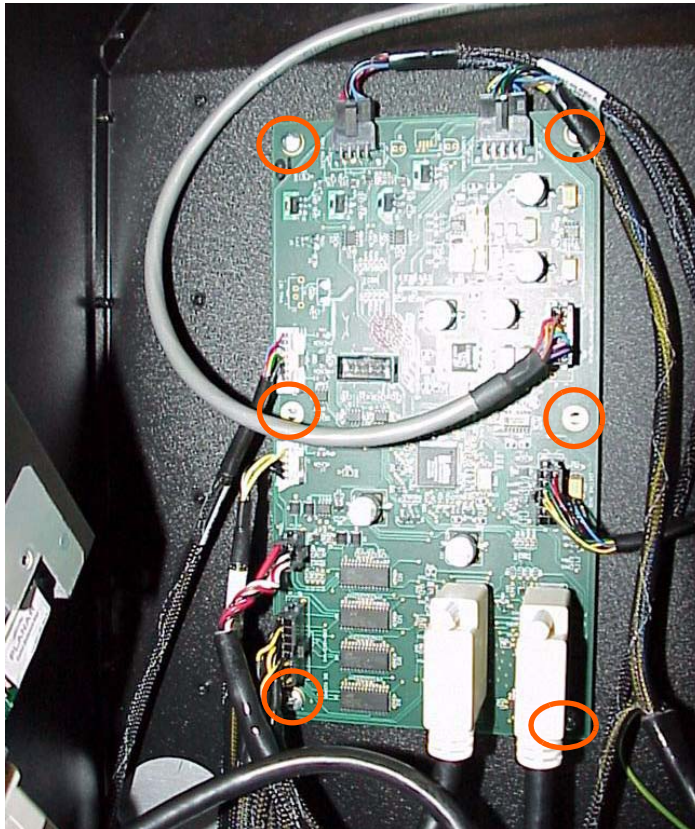
- 10 Select the ACB MIRROR: ACTUATE OR RETRACT line and press ENTER. This will cause the ACB mirror to return to the nominal position. Repeat steps 6-9 until the ACB mirror is aligned.

## 1.8 Remove/Replace System Interface Board (SIB)

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Remove the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.
- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 Unplug the following cables:
  - a Fan cable
  - b Power cable
  - c IR sensor/hi-bright LED board cable
  - d Ballast control cable
  - e DVI cable (to engine)
  - f DVI cable (to control board)
  - g Engine mount motor control cable
  - h Lamp switcher control cable (dual-lamp only)
  - i Engine power cable
  - j ACB cable (mirror and sensor)



- 7** Remove the six screws that secure the SIB.

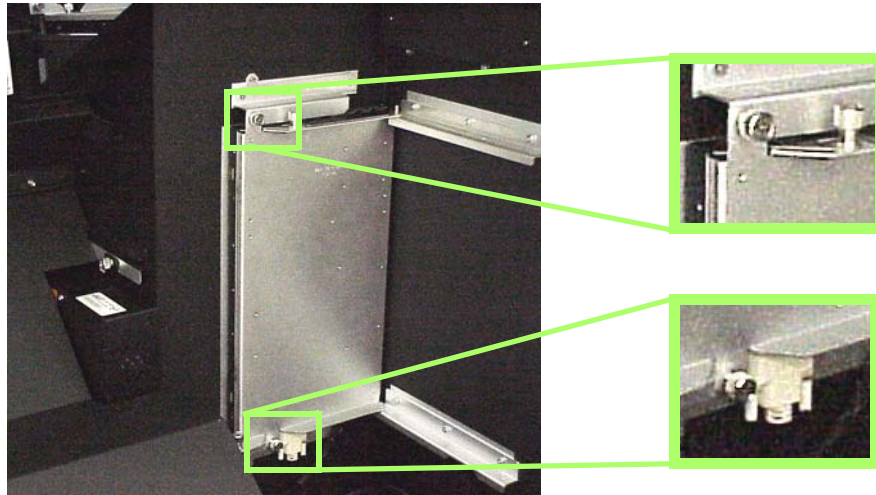


- 8** Remove the SIB and put the new SIB in the same place.
- 9** Reinstall the six screws that secure the board.
- 10** Plug in the following cables:
- a** Fan cable
  - b** Power cable
  - c** IR sensor/hi-bright LED board cable
  - d** Ballast control cable
  - e** DVI cable (to engine)
  - f** DVI cable (to control board)
  - g** Engine mount motor control cable
  - h** Lamp switcher control cable (dual-lamp only)
  - i** Engine power cable
  - j** ACB cable (mirror and sensor)

**Note:** Each connector is unique and keyed.

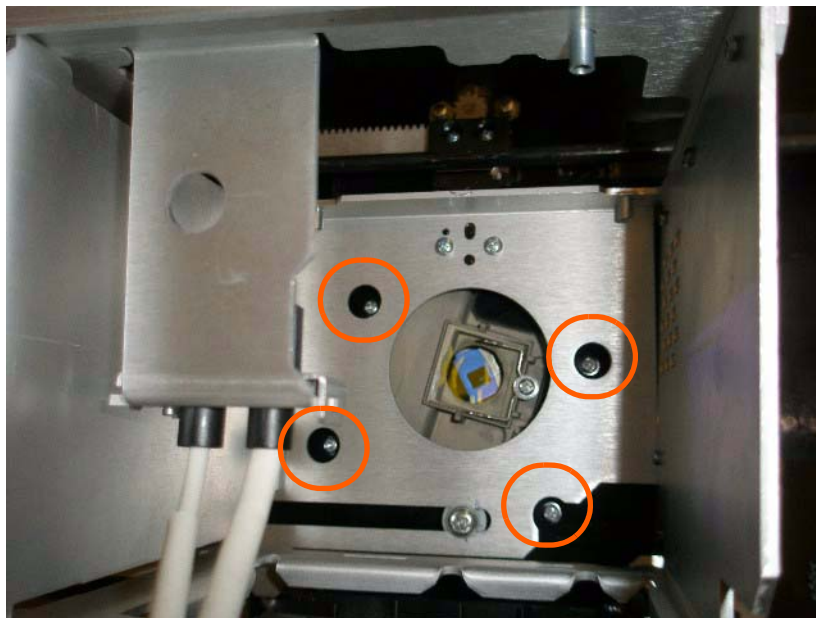
## 1.9 Remove/Replace Color Wheel

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Remove the screen. ([Task 1 Gain Access: Remove Screen on page 67](#))
- 3 Loosen the two screws at the top and bottom of the door and swing the control board in.

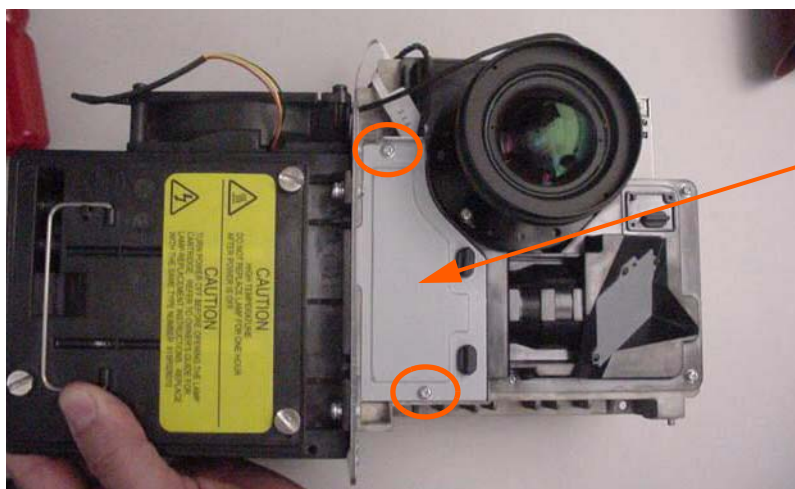


- 4 Reach through the opening next to the control board and turn off the power switch. Remove the power cord.
- 5 Lift the light shield. ([Task 1.5 Gain Access: Open Light Shield on page 82](#))
- 6 Do one of the following:
  - If you have a dual-lamp system, go to step **7**.
  - If you have a single-lamp system, go to step **11**.
- 7 Remove the optical engine. ([Task 1.5.5 Remove the Optical Engine on page 97](#))
- 8 For a dual-lamp system, remove both lamps.

- 9 Depending on where the lamp switcher is, remove the four screws that secure the lamp switcher assembly that is covering the color wheel.

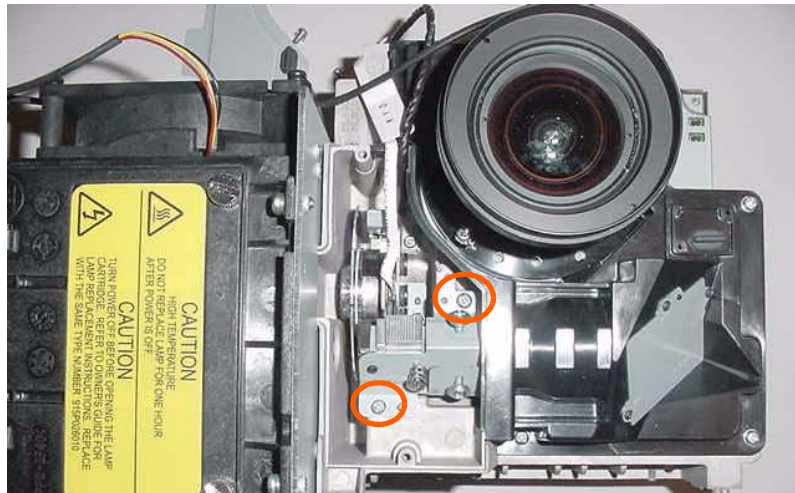


- 10 Lift off the lamp switcher assembly.
- 11 Remove two #1 Phillips screws and lift off the cover.

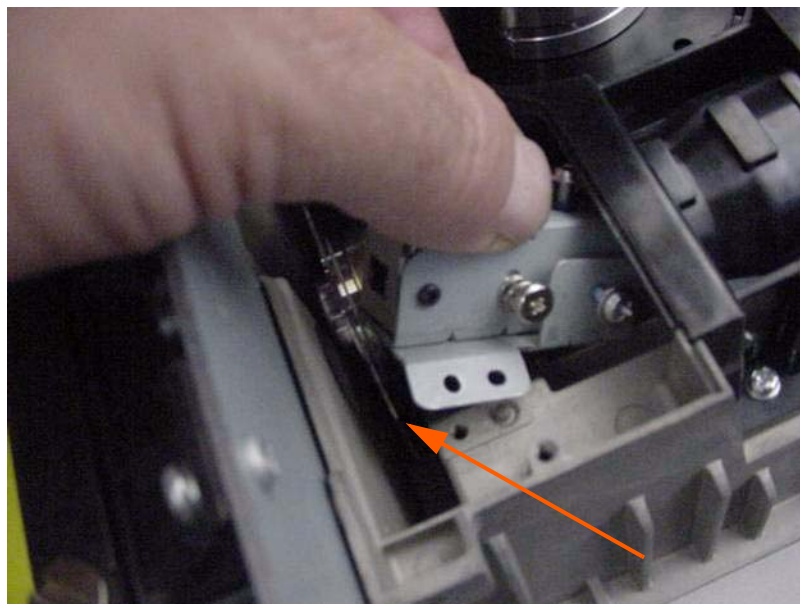


Remove two screws,  
then cover.

- 12** Remove two #2 Phillips screws.

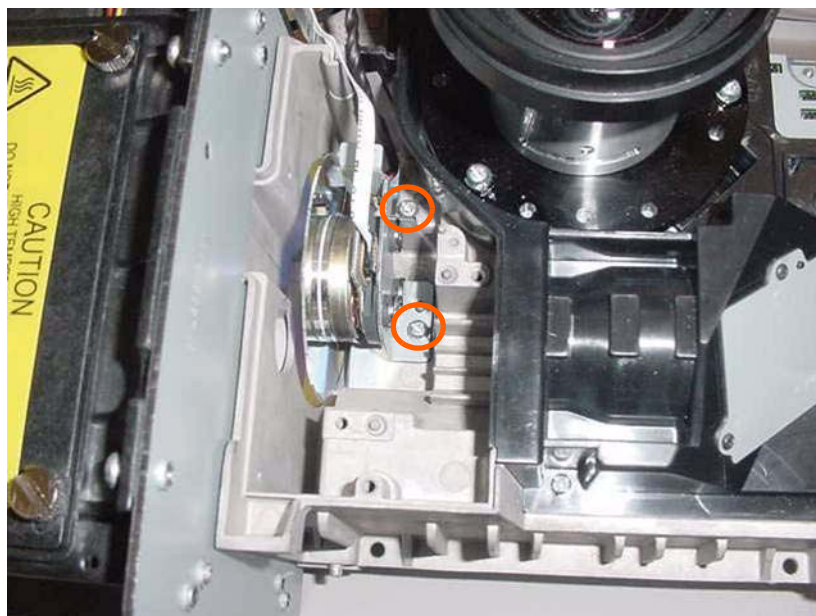


- 13** Carefully lift straight up on the input side of the mirror tunnel to clear the edge of the color wheel and then lift it out.

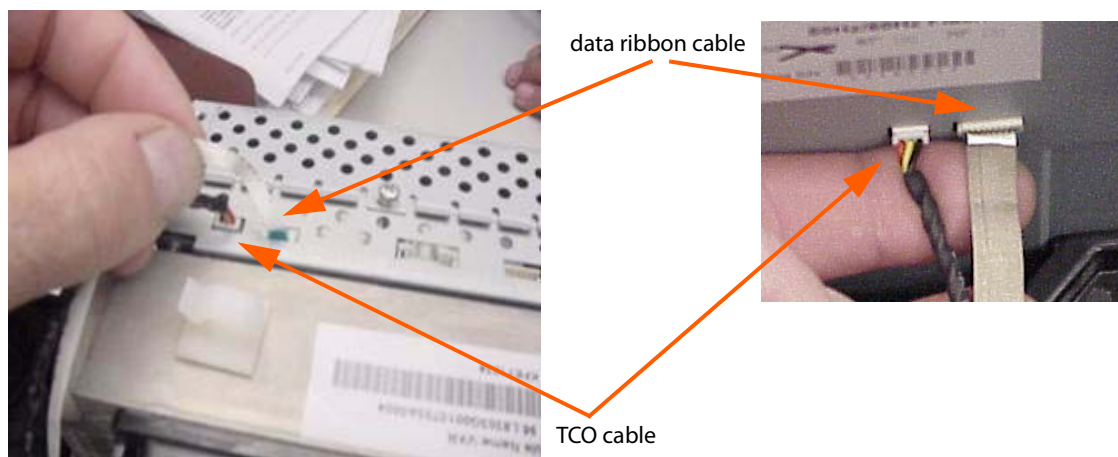


**Caution:** Be careful not to hit the color wheel as you pull out the mirror tunnel.

- 14** Remove two more #2 Phillips screws.



- 15** Using your fingernail, carefully disconnect the data ribbon cable and the TCO cable from the DMD housing. Do not pull on the cable.



**Note:** The connector pins of the data ribbon cable face upwards.

- 16** Lift the color wheel up and out using the handle ring (under the ribbon cable in the picture).

- 17** Insert the new color wheel into place and secure it with two screws. It is keyed to fit in an exact position.



- 18** Reconnect the data ribbon cable and the TCO cable to the DMD housing.
- 19** Replace two #2 Phillips screws, as shown in step **14**.
- 20** Slide the mirror tunnel back into place.
- 21** Replace two #2 Phillips screws, as shown in step **12**.
- 22** Replace the cover and secure it with two #1 Phillips screws, as shown in step **11**.
- 23** If you have a dual-lamp system, Replace the optical engine. ([Task 1.5.5.2 Replace the Optical Engine on page 104](#))
- 24** Plug in the power cord and turn the unit on.
- 25** If necessary, recalibrate the color index. ([Task 1.9.1 Recalibrating the Color Index on page 120](#)).

## 1.9.1 Recalibrating the Color Index

- 1 Replace the AC power cord and turn on AC power.
- 2 Lower the light shield.
- 3 Replace the screen. ([Task 2 Replace Screens on page 123](#))
- 4 On the remote, press ON.
- 5 When the lamp(s) lights, press MONITOR three times on the remote. The TEST PATTERNS menu appears.

| Test Patterns<br><ENTER> to select, None to show picture                                         |                                                                                             |                                                                                                | PLANAR                                                                                           |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|  None           |  Red       |  Red Scale    |  Logo         |
|  White          |  Green     |  Green Scale  |  Grid         |
|  Black          |  Blue      |  Blue Scale   |  4x4 Contrast |
|  Gray          |  Cyan     |  Gray Scale  |  Uniformity  |
|  Custom Color |  Yellow  |  Colors     |  Focus      |
|                                                                                                  |  Magenta |  Color Bars |                                                                                                  |

- 6 Select the RED SCALE option and press ENTER.
- 7 Press MENU on the remote.
- 8 From the MAIN MENU, select PROGRAM INFORMATION.

| Program Information                                                                                                                                                       | PLANAR |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Planar Systems, Inc.<br>Control Room & Digital Signage Division<br>1195 NW Compton Drive<br>Beaverton, OR 97006 USA<br>+1.866.475.2627<br>+503.748.1100<br>www.planar.com |        |
| RX/RP Series 1024 x 768<br>010-0983 Rev 00                                                                                                                                |        |
| Code Generated Date: Apr 18 2008 at 09:08:35<br>GUI Generated Date: April 18, 2008 at 09:08:35                                                                            |        |

- 9 With this menu open, press the following arrow keys on the remote: up, up, right, left, down. The FACTORY SETTINGS menu appears.

| Factory Settings               |                           | PLANAR |
|--------------------------------|---------------------------|--------|
| Clear Last 10 Inputs Memory    |                           |        |
| Reset to Factory Defaults      |                           |        |
| Reset System to Start Download |                           |        |
| Disable IR Remote              |                           |        |
| OEM                            |                           | CSBU   |
| <input type="checkbox"/>       | Gamma (PW181)             |        |
|                                | YPbPr Calibration         | ▶      |
|                                | Engine/Ballast Parameters | ▶      |
| ACB Mirror: Actuate or Retract |                           |        |
| ACB Mirror: Actuated Position  |                           | 30     |
| <input type="checkbox"/>       | Hide Motor Menus (c80)    |        |

- 10 Select ENGINE/BALLAST PARAMETERS.
- 11 Highlight INDEX DELAY and use the left/right arrows to move the index delay to the left or right. The goal is to have a smooth gradient from vivid red on the right to black on the far left.
- 12 When you are finished, press MENU to close the menus.

## 1.10 Close Light Shield

- 1** Lower the light shield and secure it with the captive spring pin on the front left side.
- 2** Replace the power cord and turn on the power switch.
- 3** Swing the control board in and tighten the two screws at the top and bottom of the door.

## 2 Replace Screens

Replace the screens in the reverse order in which they were removed.

- 1** Extend the screen guide rails all the way out.
- 2** With one person holding each side of the screen, hook the screen on the guide rails.
- 3** Push the screen straight into place.
- 4** With the heel of your hand, gently press in on each corner until you hear it snap into place. You may have to lift up the screen to make sure the bullets on the chassis align to the holes inside the screen frame.



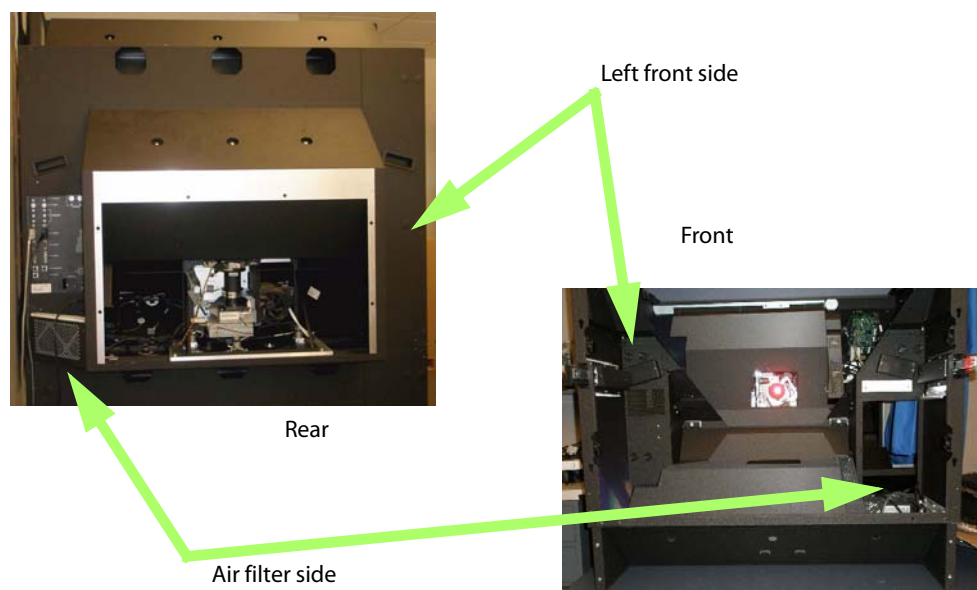
# Rear-Access Maintenance and Service Procedures

## Introduction

The procedures in this chapter are similar to those contained in [“Front-Access Maintenance and Service Procedures” on page 65](#), but the actual steps and methods you’ll use may be different.

**Caution:** There are no electrical interlocks in the c50/c67R. Opening the screen, opening the light shield or removing the rear panel does not turn off the lamp or the high voltage.

**Note:** It can be confusing to refer to the right side or left side of the display when you are working from the front and the rear. Therefore, in this section one side is called the air filter side and the other is called the left front side.



**Note:** All pictures and views *in this section* are from the **rear** unless otherwise noted.

**Note:** Some c50/c67R displays have a single-lamp system; some have a dual-lamp system. There are pictures of both throughout this manual.

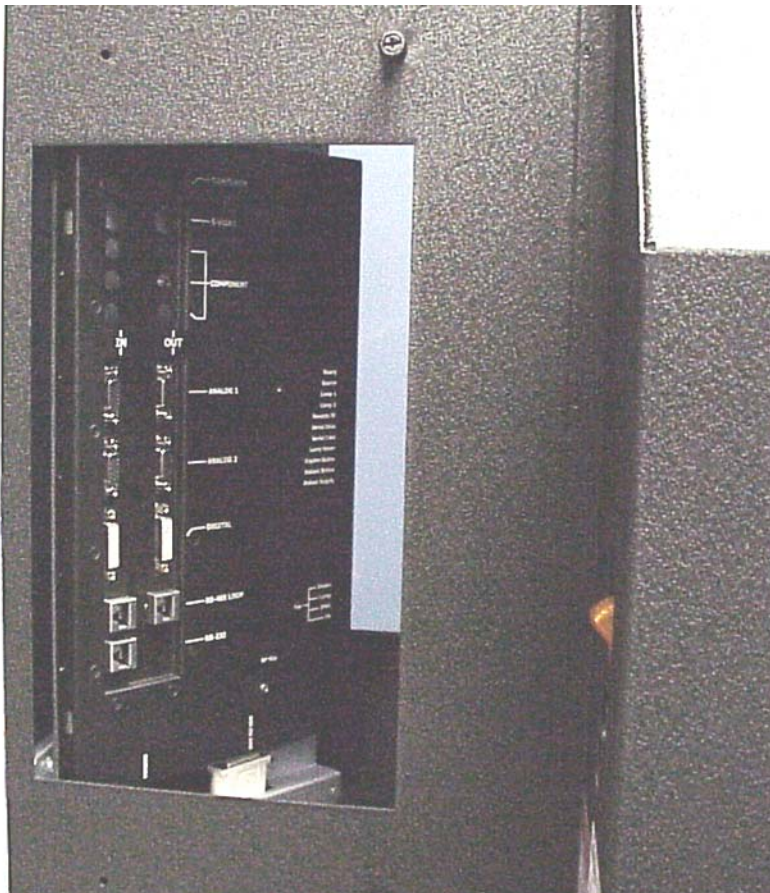
If you have a part under warranty or a part can be repaired under Planar’s repair option, contact Planar’s Technical Support Department. [See “Accessing Planar’s Technical Support Website” on page 173.](#)

## Required Tools

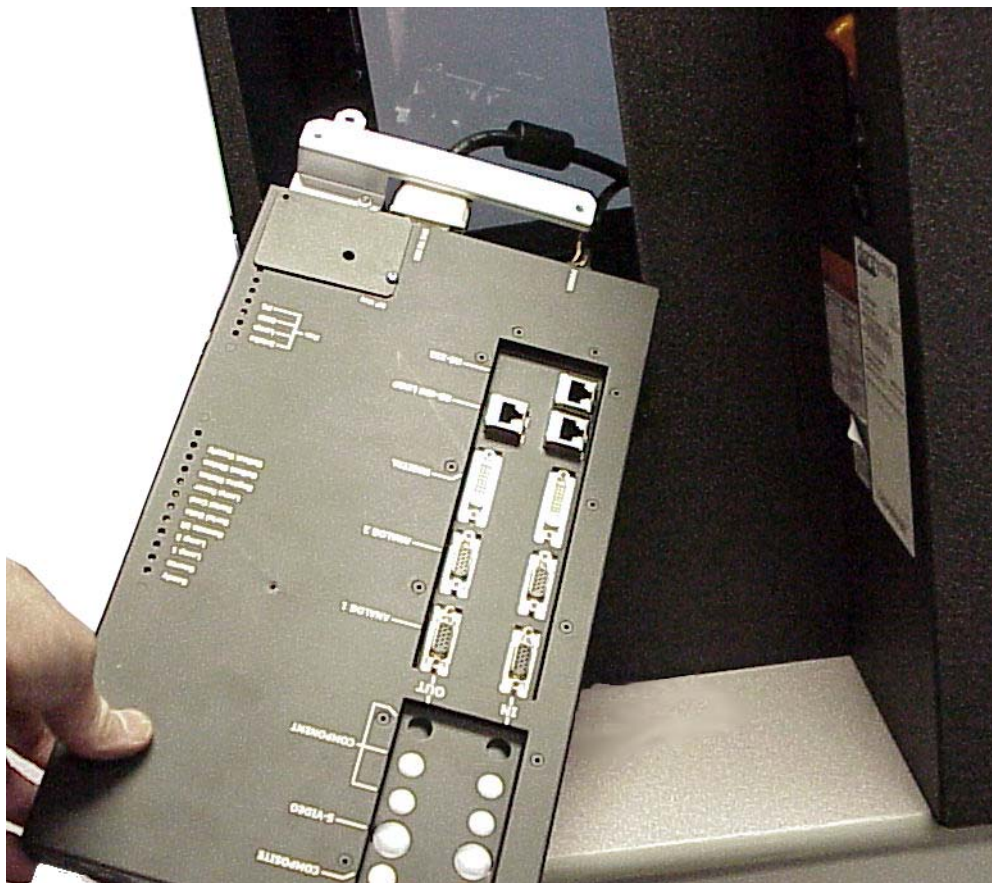
- #1 and #2 Phillips screwdrivers, long #2 Phillips screwdriver
- Needle-nose pliers
- 7mm nut driver
- 3/16” nut driver

# 1 Remove Control Board

- 1 Use the remote control to turn off the lamps of all units on which you need to perform service (even if you are only going to remove the screen) and allow the cooling fans to stop (approximately one minute) before opening the screen.
- 2 Power down the unit and remove the power cord.
- 3 Disconnect all input and output cables from the control board.
- 4 Loosen the two captive screws for the control board.
- 5 Swing the control board in to the left about 45°.



- 6 Lift the control board up off its pin hinges with cables still connected. Turn it gently so the top comes out first.

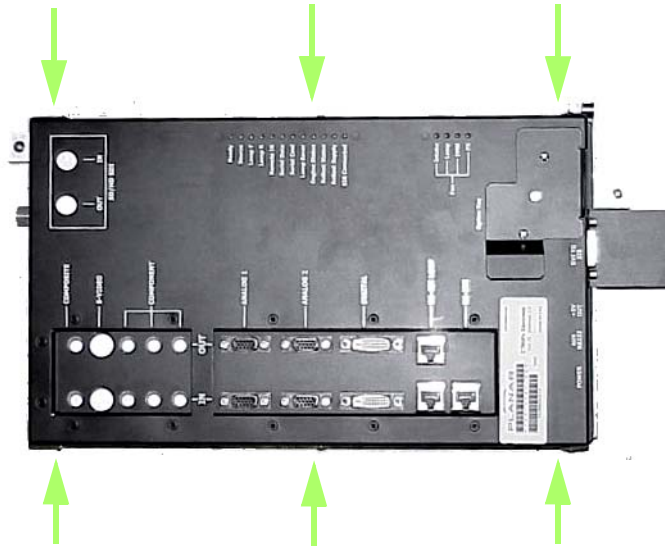


- 7 Now disconnect the cables from the bottom of the control board.

**Note:** The control board is still connected to two brackets. Remove them if you are replacing this control board with another one. Do not send the brackets to Planar.

## 1.1 Gain Access: Open Control Board

- 1 Remove the Control Board from the c50/c67R. ([Task 1 Remove Control Board on page 127](#))
- 2 Remove six screws from the sides of the cover.



- 3 Carefully remove the DVI connector EMI (Electromagnetic Interference) shield without tearing the tape to which it is attached. Use a 3/16" nut driver.



- 4 Remove the cover. It is a snug fit so it may be difficult to remove.

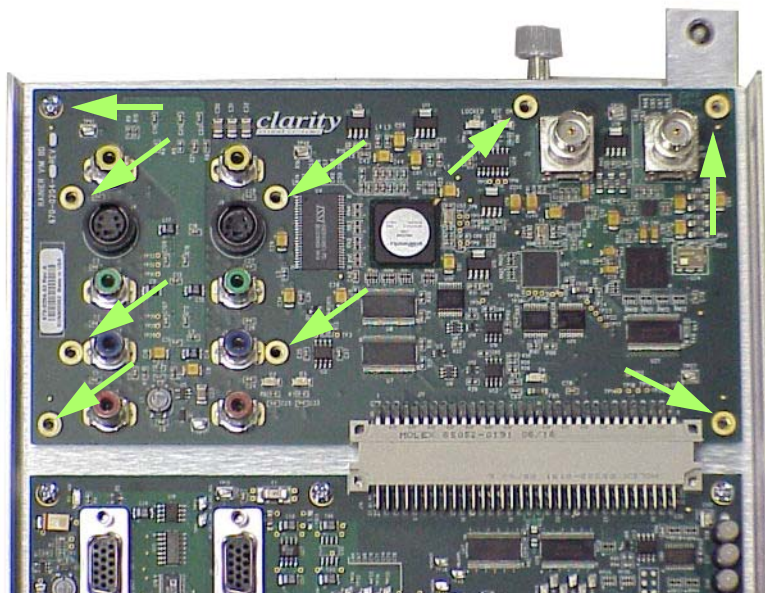
## 1 Remove Control Board

### 1.1 Gain Access: Open Control Board

#### 1.1.1 Remove/Replace Video Input Module (VIM)

## 1.1.1 Remove/Replace Video Input Module (VIM)

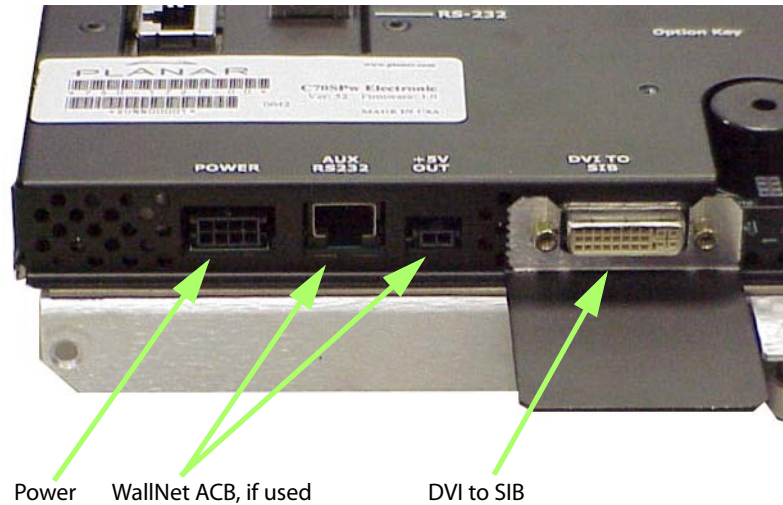
- 1 Open the control board. (See [Task 1.1 Gain Access: Open Control Board on page 129](#))
- 2 Remove nine screws on the VIM.



- 3 Pull the VIM away from the control board and lift it out.
- 4 Reverse this procedure to install a new VIM.

## 1.2 Replace the Control Board

- 1 Connect the cables on the bottom of the control board. These are the power and data cables that connect the control board to the rest of the display.



- 2 Set the control board on the pins, starting with the bottom pin. The bottom pin is a little longer.



Control Board hinge,  
bottom pin

- 3 Lift the control board a little bit and set it on the top pin.
- 4 Pull the control board door shut so it is against the back wall. This may be easier if you connect one of the in/out cables that screws or latches into the control board.

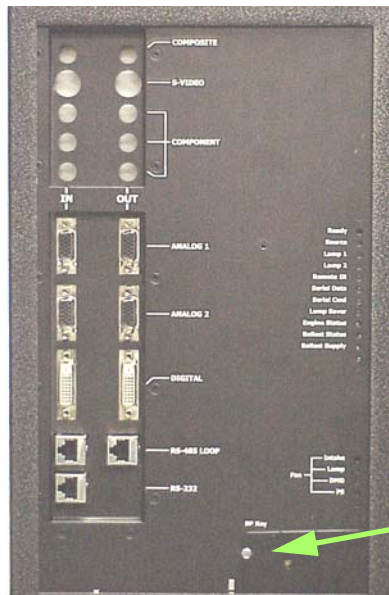
- 5 Tighten the two captive screws above and below the control board.



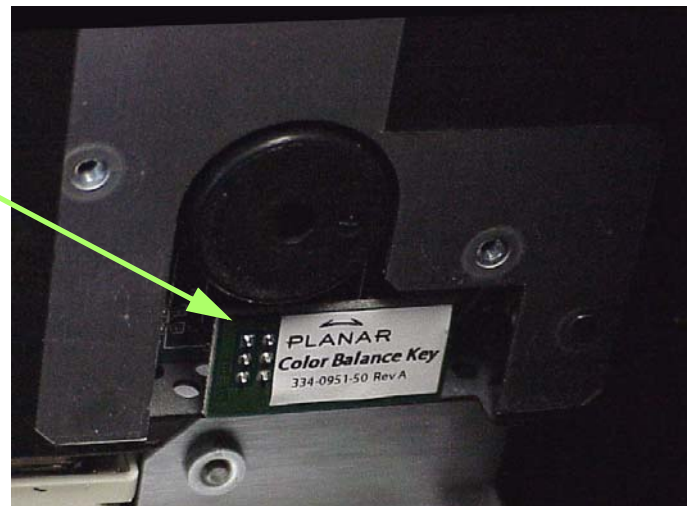
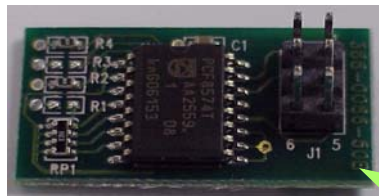
- 6 Install the input/output cables and power cables as they were before.
- 7 Close the control board door and tighten the screws at the top and bottom of the control board.

## 2 Remove/Replace Option Key

- 1 Remove the two screws on the small plate at the bottom of the control board.



- 2 If you have an old Option Key, remove it from the control board.
- 3 Remove the Option Key from its shipping pouch and anti-static bag. Be sure you are grounded.
- 4 The Option Key has six pins. Plug the key into the socket on the control board. Be sure all six pins go in. If only one row of pins is connected, the whole display may not function.

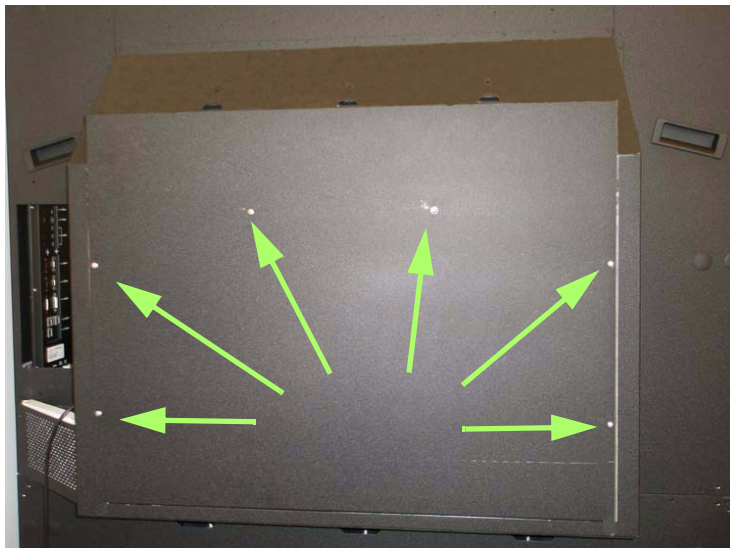


- 5 Using the two screws you set aside earlier, reinstall the Option Key cover plate.
- 6 Reinstall the power cord.

## 3 Gain Access: Remove Rear Panel

**Caution:** Removing the rear panel *does not* turn off the lamp. There are no electrical interlocks in the c50/c67R.

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Power down the unit and remove the power cord.
- 3 Release the six quarter-turn fasteners that hold the rear panel in place.



- 4 Lift the rear panel up and off the rear of the c50/c67R. Note the bottom-center tab that fits inside to hold the bottom edge in place.

**Note:** For almost all tasks from the rear, you must raise the light shield to get it out of the way. Go to the next section.

## 3.1 Gain Access: Open Light Shield

- 1 Open the control board. (See [Task 1.1 Gain Access: Open Control Board on page 129](#))
- 2 Pull out the captive spring pin that is securing the light shield.



- 3 Push up on air filter side of the light shield. A pressurized hinge on the front left side keeps the light shield in place once it's lifted it up.



**Note:** All the tasks in this manual are laid out hierarchically. This means **tasks must be performed in the order presented**. If you already know how to access specific components, you may go directly to those tasks.

| Where to go from here                                                               |
|-------------------------------------------------------------------------------------|
| <a href="#">Task 3.1.1 Remove/Replace Lamp on page 137</a>                          |
| <a href="#">Task 3.1.2 Remove Power Supply Module on page 142</a>                   |
| <a href="#">Task 3.1.3 Replace Power Supply Module on page 144</a>                  |
| <a href="#">Task 3.1.4 Remove the Lamp Ballast on page 145</a>                      |
| <a href="#">Task 3.1.5 Replace the Lamp Ballast on page 149</a>                     |
| <a href="#">Task 3.1.6 Change Air Filter on page 150</a>                            |
| <a href="#">Task 3.1.7 Remove the Optical Engine on page 151</a>                    |
| <a href="#">Task 3.1.8 Remove/Replace IR/LED Board on page 159</a>                  |
| <a href="#">Task 3.1.9 Remove/Replace Color Sensor on page 160</a>                  |
| <a href="#">Task 3.1.10 Remove/Replace System Interface Board (SIB) on page 164</a> |
| <a href="#">Task 3.1.11 Remove/Replace Color Wheel on page 166</a>                  |
| When you have completed the tasks, return here                                      |

- 4** When all tasks have been completed, close the light shield and replace the rear panel ([Task 4 Replace Rear Panel on page 172](#)).

### 3.1.1 Remove/Replace Lamp

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.

**WARNING!** Never remove a lamp that is still lit.

**Caution:** In the dual-lamp system, it is possible to remove and replace the lamp that is not being used while the other lamp is on. Be careful. Use UV protective eye wear. Also, be aware that lamps are very hot and can stay hot for some time after they are turned off.

- 2 Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 3 Turn off the power switch and remove the power cord. (For front-access units, reach through the opening next to the control board.)
- 4 Lift the light shield. ([Task 3.1 Gain Access: Open Light Shield on page 135](#))
- 5 If you have a dual-lamp system and want to change the front lamp, remove the three thumb screws and bracket above the lamps.
- 6 Loosen the three captive thumb screws on top of the lamp. The picture shows two lamps in the dual-lamp system. Your system may only have one.



**Note:** In a 150W system, captive screws are facing the rear of the chassis. In a 120W system, the screws are on the top.

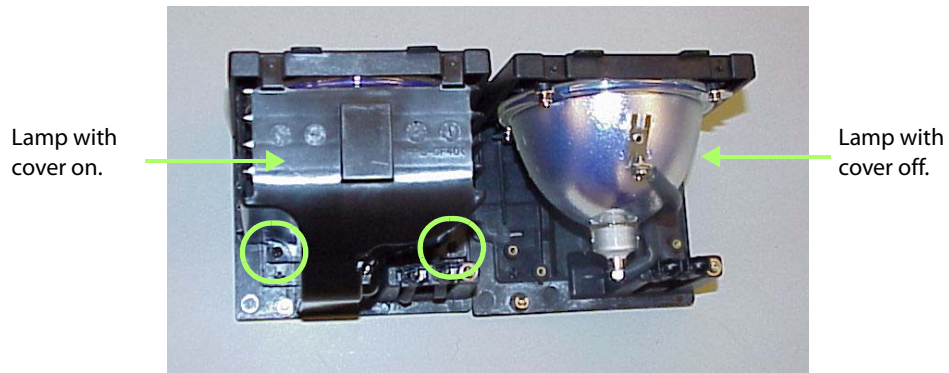
- 7 Lift the wire handle and pull the lamp straight up and out.
- 8 Remove the new lamp from its packaging.

### 3 Gain Access: Remove Rear Panel

#### 3.1 Gain Access: Open Light Shield

##### 3.1.1 Remove/Replace Lamp

- 9 Remove the two screws that secure the plastic cover over the lamp and then lift off the cover.



- 10 Plug the new lamp into this space, pushing it all the way down. Tighten the three screws finger tight.

**Note:** If the lamp is not pushed all the way down, the light path will not be correct. This may cause a poor picture.

**Note:** If you have a dual-lamp system, make sure the alignment tabs on the lamp in position are seated in the slots.

- 11 Close the light shield.
- 12 Reinstall the power cord and turn the unit on.
- 13 Reset the lamp hours. ([Task 3.1.1.1 Reset the Lamp Hours on page 139](#))

### 3.1.1.1 Reset the Lamp Hours

After you put in a new lamp, reset the time counter for that lamp. Why reset lamp hours? This is for your information and your records only. It is not required for operation or for warranty replacement. After the new lamp is lit, use the remote control to open the HOURS menu. Select the appropriate RESET LAMP HOURS line and press ENTER to reset the lamp hours to zero.

| Main Menu           | PLANAR |
|---------------------|--------|
| Picture             | ▶      |
| Size & Position     | ▶      |
| Aspect Ratio & Wall | ▶      |
| Memory              | ▶      |
| <b>Diagnostics</b>  | ▶      |
| Advanced Options    | ▶      |
| Program Information | ▶      |

| Diagnostics        | PLANAR |
|--------------------|--------|
| Unit Status        | ▶      |
| Serial Port Status | ▶      |
| Test Patterns      | ▶      |
| Setup Summary      | ▶      |
| Lamp Ballast       | ▶      |
| <b>Hours</b>       | ▶      |

If you have a single-lamp system, you will see only one lamp listed in this menu.

| Hours                          | PLANAR   |
|--------------------------------|----------|
| System Time                    | 00636:45 |
| Running Time                   | 00532:00 |
| Lamp - Front                   | 00301:03 |
| Lamp - Rear                    | 00230:57 |
| Reset Lamp Hours - Front       |          |
| <b>Reset Lamp Hours - Rear</b> |          |

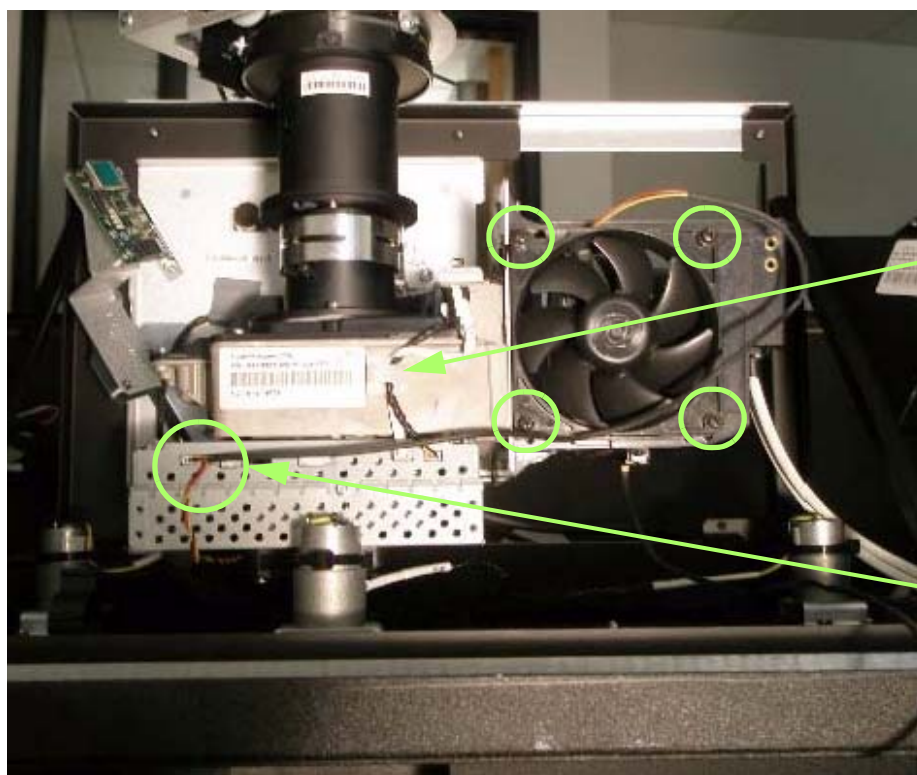
### 3.1.1.2 Color Balance the Wall

If you replace a lamp, you should color balance the wall again. This can be done manually, or with the (optional) Auto Color Balance system.

- For detailed manual color balancing instructions, see the c50/c67R Installation & Configuration Guide.
- For Auto Color Balance instructions, see the c50/c67R Installation & Configuration Guide and the WallNet User Manual.

### 3.1.1.3 Remove/Replace Lamp Fan

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Power down the unit and remove the power cord.
- 3 Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 4 Lift the light shield. ([Task 3.1 Gain Access: Open Light Shield on page 135](#))
- 5 Remove the lamp that is in the active position. ([Task 3.1.1 Remove/Replace Lamp on page 137](#))
- 6 Remove the lamp fan cable from the cable clamp.
- 7 Disconnect the lamp fan cable from the engine.



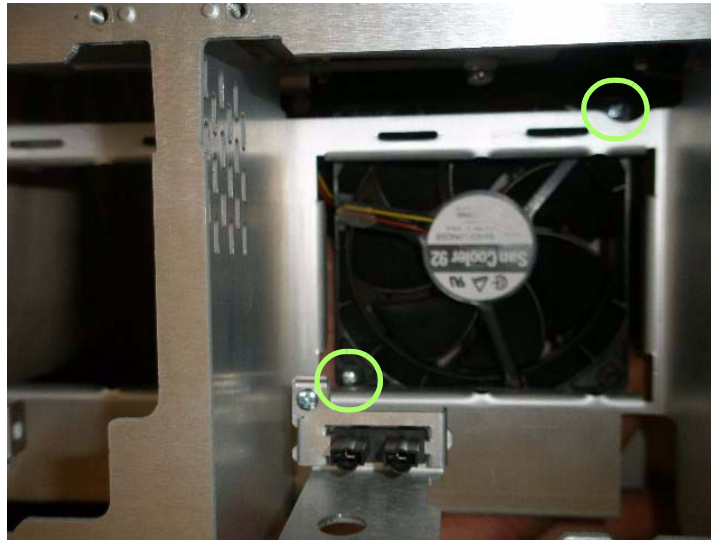
This picture shows a single-lamp unit

Cable clamp

Lamp fan cable

- 8 Do one of the following:
  - For a single-lamp system, go to step 9.
  - For a dual-lamp system, go to step 10.
- 9 Remove the four screws that secure the lamp fan and lift it out. Go to step 12.

- 10** Remove the two screws from the fan that secure it.

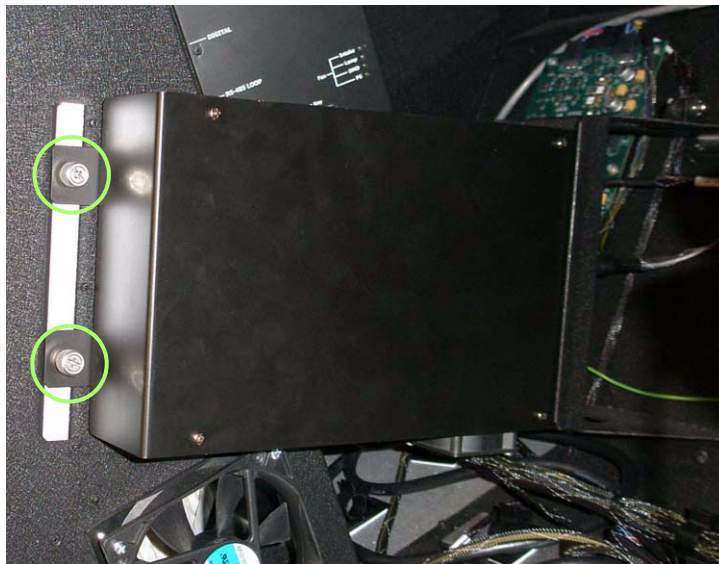


This picture shows a dual-lamp unit as seen from the top.

- 11** Slide the fan to the side to remove it.
- 12** Insert the new lamp fan in place and secure it with the correct number of screws (4 for a single-lamp system or 2 for a dual-lamp system).
- 13** Insert the lamp fan cable and secure it with the cable clamp. Make sure the label faces towards the lamp and the cable faces the rear of the display.

## 3.1.2 Remove Power Supply Module

- 1** Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2** Power down the unit and remove the power cord.
- 3** Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 4** Lift the light shield. ([Task 3.1 Gain Access: Open Light Shield on page 135](#))
- 5** Loosen the two captive screws at the top of the power supply module.



- 6** Pull the power supply module out from the “blind mate” connector. There are no cables to disconnect.

### 3.1.2.1 Remove/Replace Intake Fan

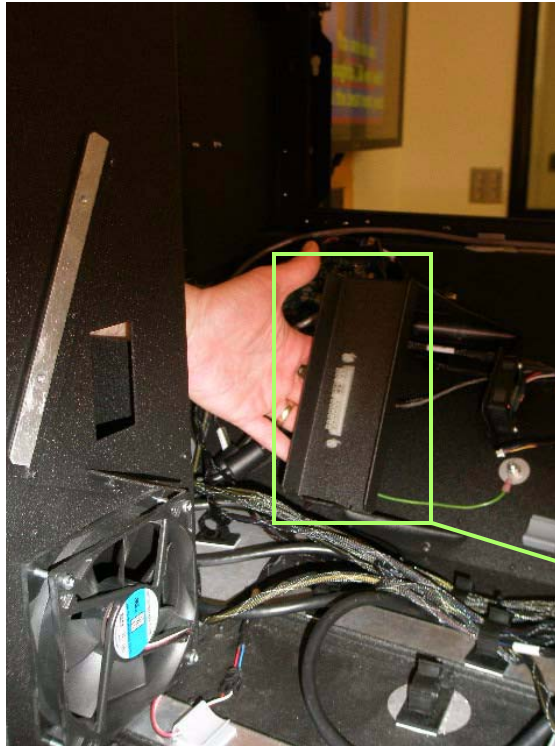
- 1 With the power supply module removed, disconnect the intake fan cable.



- 2 Remove the four screws that secure the intake fan and remove it.
- 3 Place the new intake fan in position, with the label facing inward, and secure it with four screws.
- 4 Plug back in the intake fan cable.

## 3.1.3 Replace Power Supply Module

- 1 Align the power supply module and lower it into place. The connector on the bottom is a “blind-mate” connector. To make sure it is engaged, push up from the bottom below the connector to make sure it is securely seated.

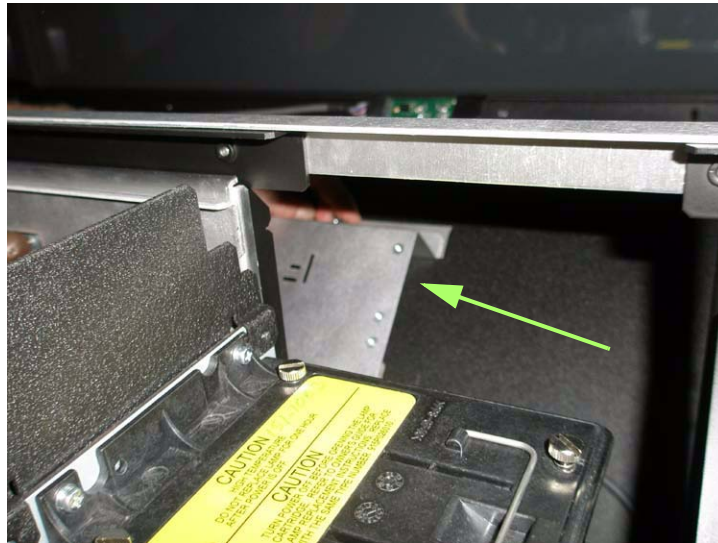


Slide the bottom of the power supply module into this “blind-mate” connector.

- 2 Screw in the two captive retaining screws. Finger tight is usually enough.

### 3.1.4 Remove the Lamp Ballast

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Power down the unit and remove the power cord.
- 3 Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 4 Open the light shield. ([Task 3.1 Gain Access: Open Light Shield on page 135](#))



**Note:** The ballast is behind the optical engine and will be difficult to see from the rear.

- 5 Unscrew the captive screw on the top of the ballast module.
- 6 Unplug the lamp cable(s).

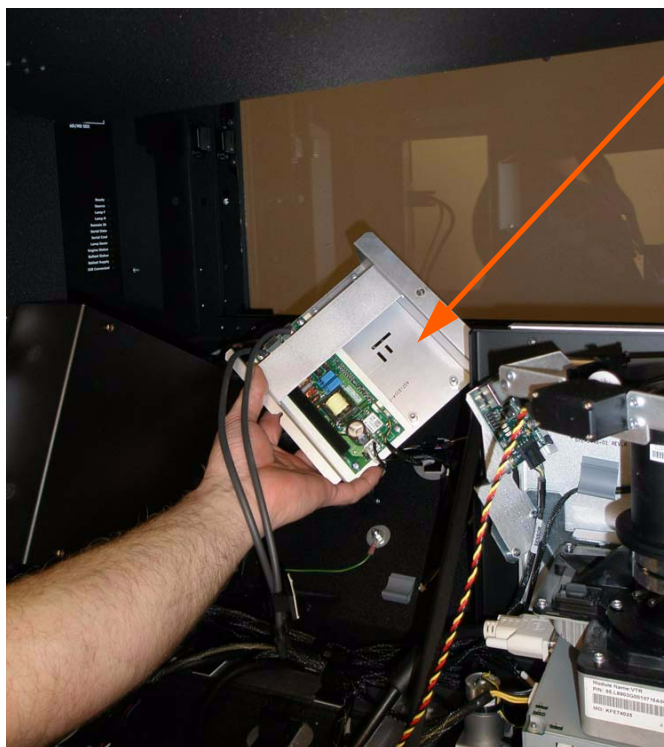


### 3 Gain Access: Remove Rear Panel

#### 3.1 Gain Access: Open Light Shield

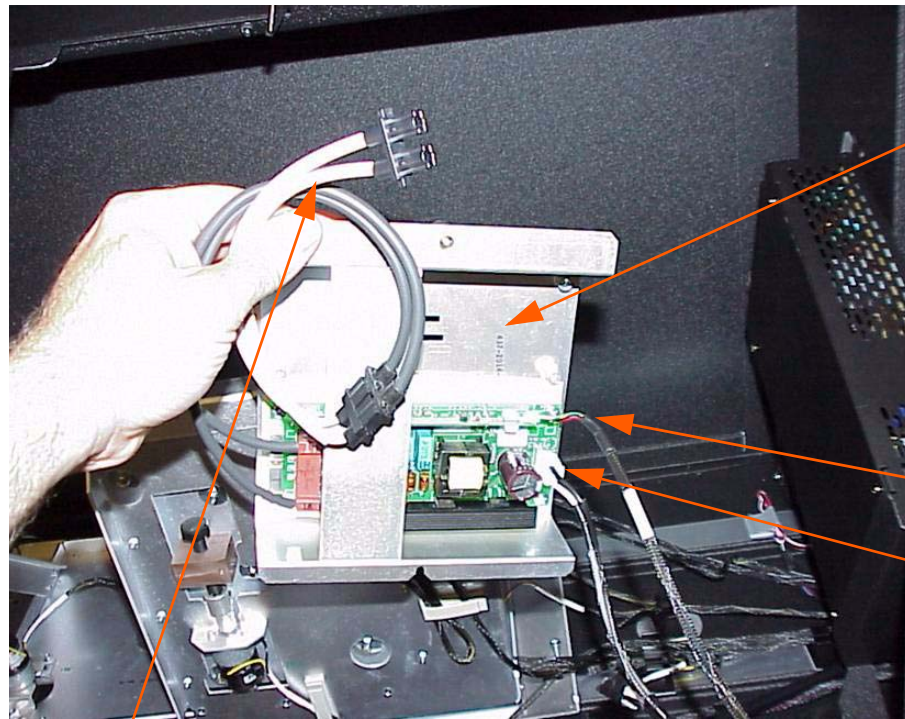
##### 3.1.4 Remove the Lamp Ballast

- 7 Lift the ballast module out towards the air filter side, but not too far. It is still connected to cables.



This picture shows a single-lamp unit. If this were a dual-lamp unit, the second ballast would be mounted here.

- 8 Disconnect the power and control cables from the ballast module. (For a dual-lamp system, there would be a second set of these connectors.)



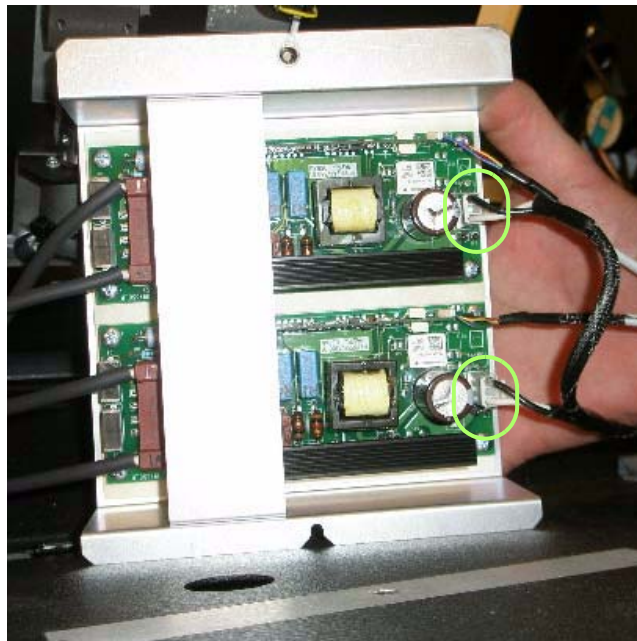
This picture shows a single-lamp unit. If this were a dual-lamp unit, the second ballast would be mounted here.

Control cable

Power cable

HV cable

- 9 Remove the HV cable (black and white wires in a cable). For a dual-lamp system, you should do this for both ballasts.



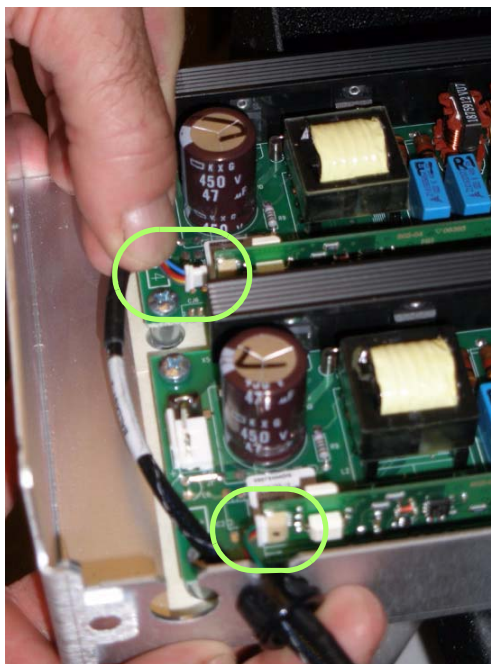
This picture shows a dual-lamp ballast.

### 3 Gain Access: Remove Rear Panel

#### 3.1 Gain Access: Open Light Shield

##### 3.1.4 Remove the Lamp Ballast

- 10 Remove the smaller control cable. For a dual-lamp system, you should do this for both ballasts.



**Caution:** When removing the control cable, don't pull on the wires. Use your fingernail to pull up on the white female connector.

## 3.1.5 Replace the Lamp Ballast

- 1 Connect the control, power and HV cables, as well as the smaller control cable to the ballast. Each cable is labeled. (For a dual-lamp system, there would be a second set of these connectors.)

**Caution:** For dual-lamp systems Ballast No. 1 is the upper ballast, and Lamp No. 1 is the front lamp. It is important to get this correct. Otherwise, the control board will turn on the wrong lamp.

- 2 Lower the ballast module into place. Tighten the captive screw.
- 3 Connect the lamp cable(s).

## 3.1.6 Change Air Filter

- 1** Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2** Power down the unit and remove the power cord.
- 3** If necessary, lift up the cables so they are not in the way of the air filter.
- 4** Pull straight up on the air filter to remove it.



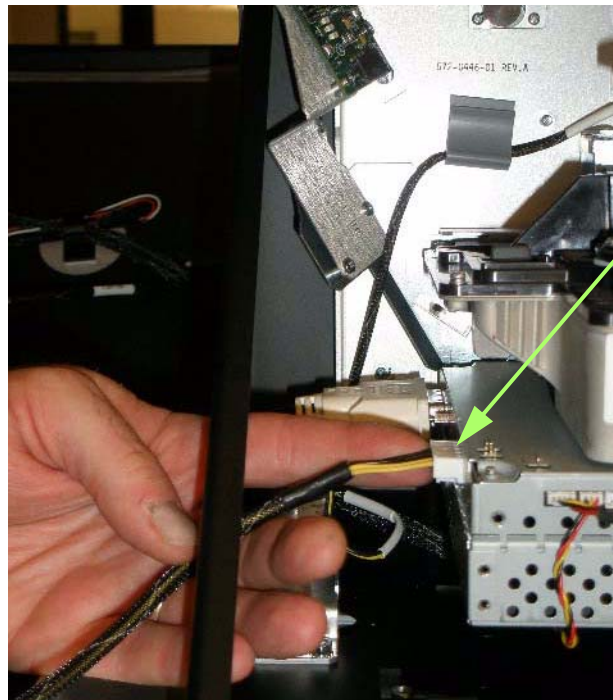
- 5** Insert the new air filter. Arrows on the air filter should indicate air flow direction, which is into the unit.
- 6** Plug in the power cord and turn on the power.

### 3.1.7 Remove the Optical Engine

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Power down the unit and remove the power cord.
- 3 Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 4 Open the light shield. ([Task 3.1 Gain Access: Open Light Shield on page 135](#))
- 5 Disconnect cables from the optical engine as described in the following substeps: **a-e** (**a-g** for a dual-lamp system). If necessary, remove any cables from cable clamps.

**Note:** It does *not* help to remove the lamp; the engine is still the same size and you still have to disconnect the same number of cables.

- a** Disconnect the engine power cable from the engine formatter board.

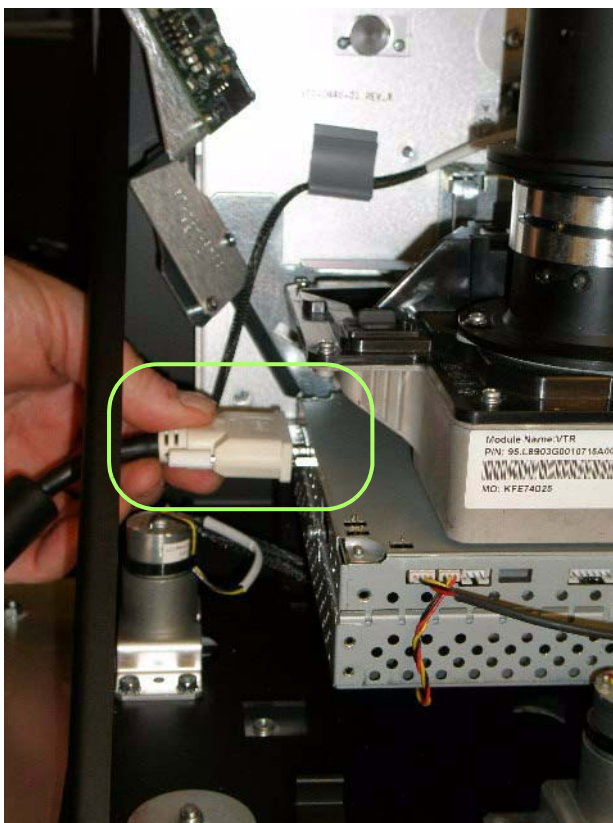


### 3 Gain Access: Remove Rear Panel

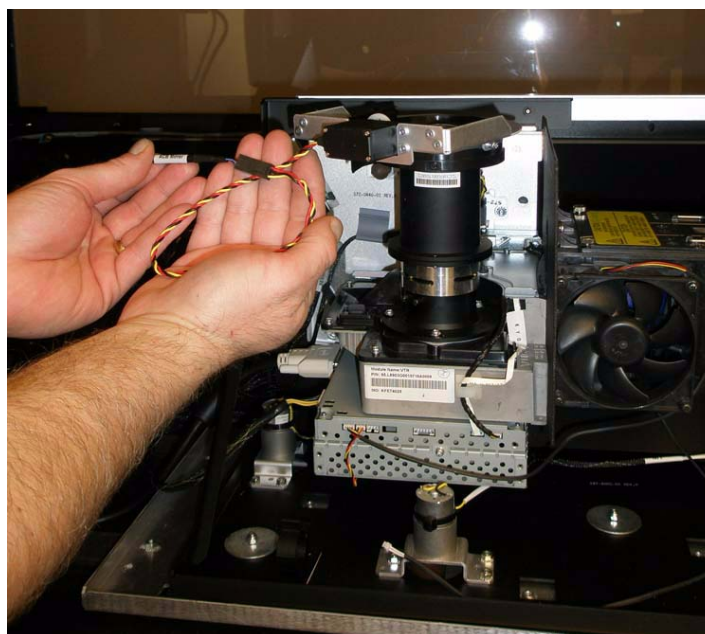
#### 3.1 Gain Access: Open Light Shield

##### 3.1.7 Remove the Optical Engine

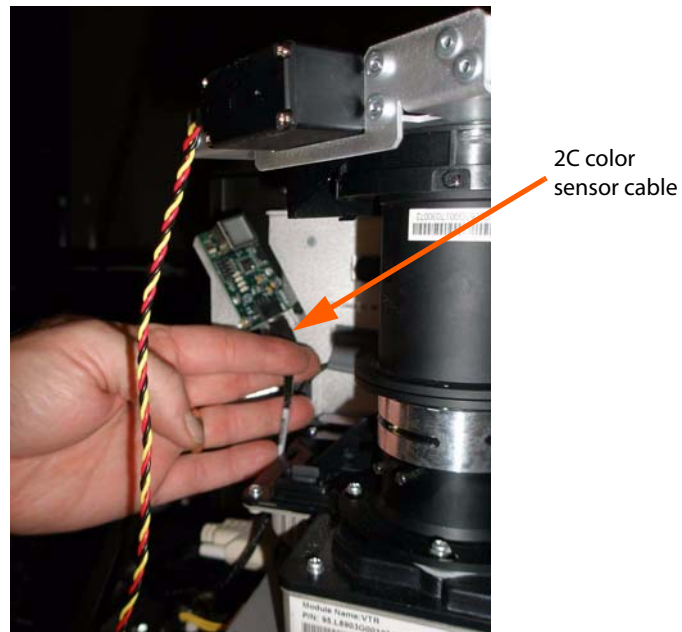
**b** Disconnect the DVI cable from the engine formatter board.



**c** Disconnect the ACB motor cable from the ACB mirror cable.



- d** Disconnect the 2C color sensor cable from the ACB board.



- e** Disconnect the lamp cable(s).

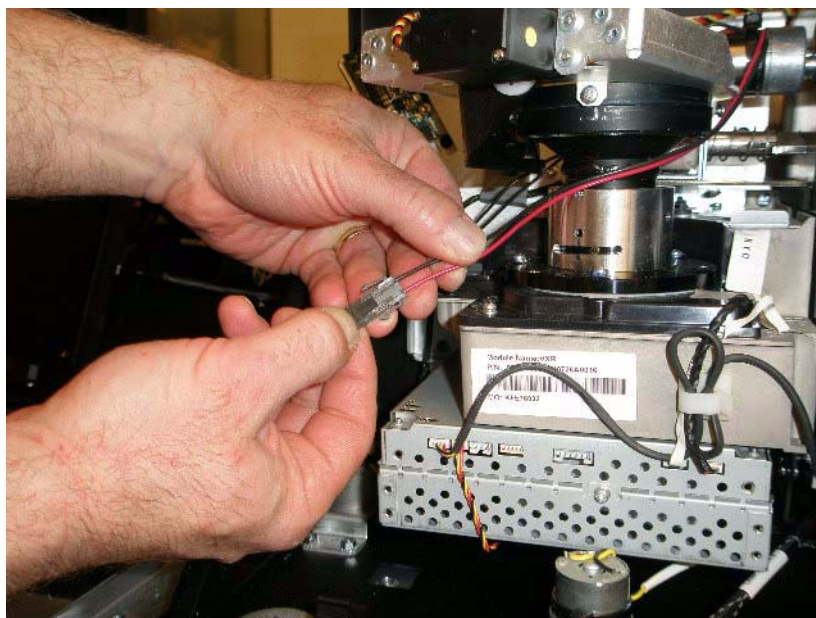


### 3 Gain Access: Remove Rear Panel

#### 3.1 Gain Access: Open Light Shield

#### 3.1.7 Remove the Optical Engine

**f** If this is a dual-lamp system, disconnect the lamp switcher motor cable.

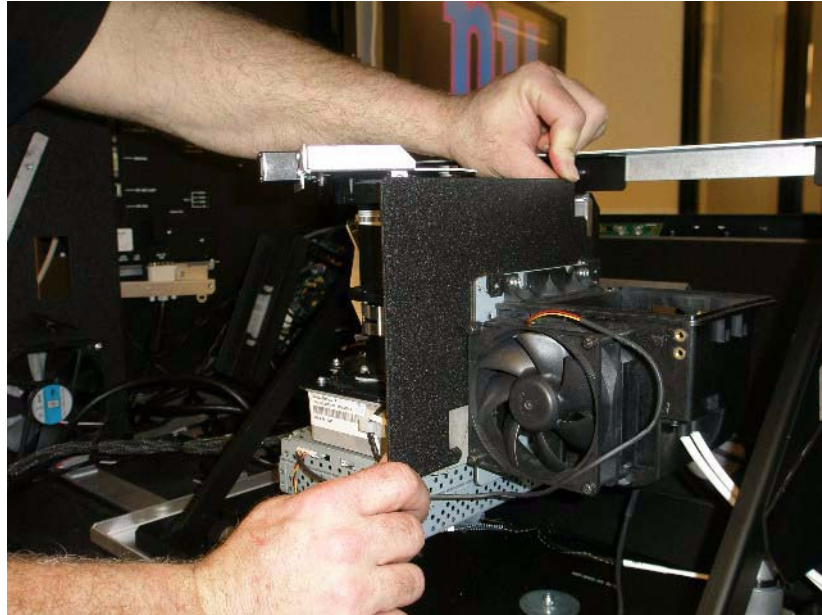


**g** If this is a dual-lamp system, disconnect the solenoid cable at the top of the optical engine.

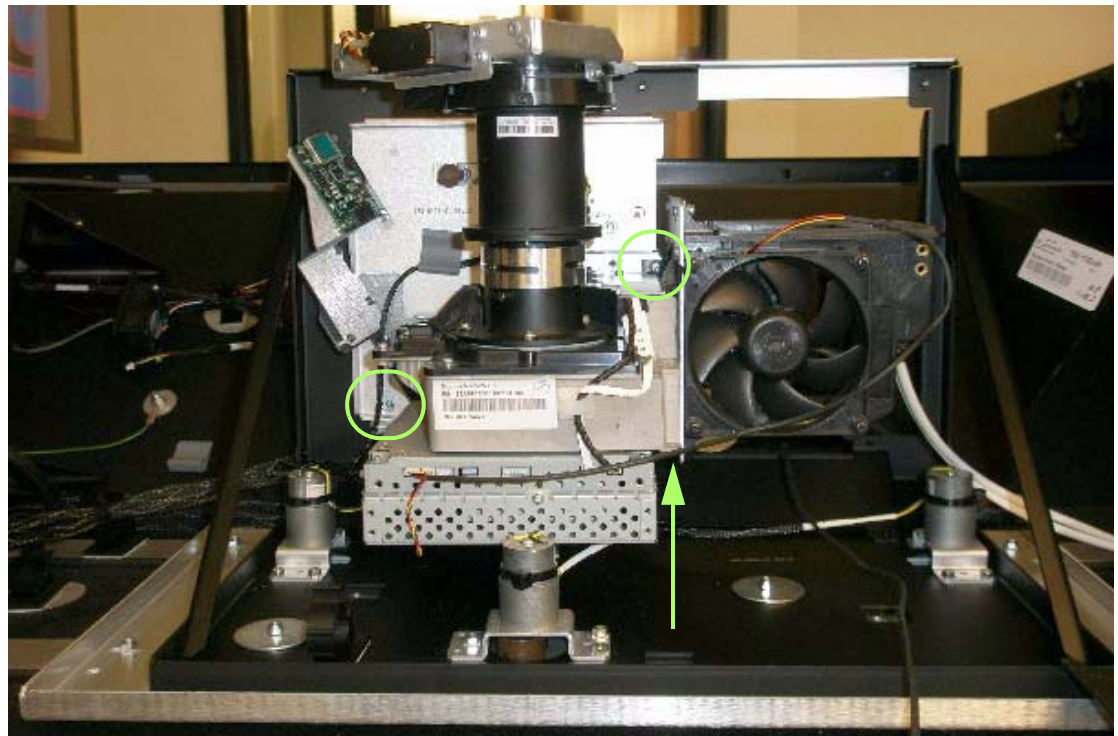


**6** Remove the engine mount motor control cable from the SIB.

- 7 Remove the engine carrier light shield with the tabs over the top of the lamp carrier.

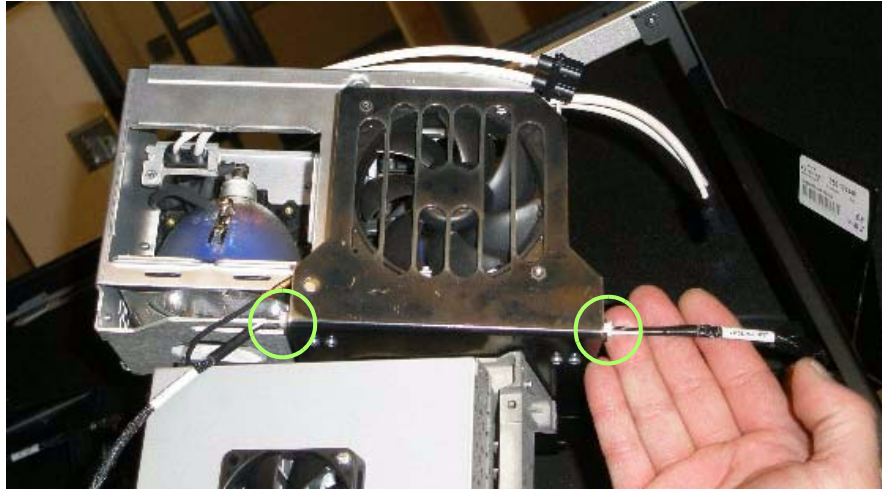


- 8 Remove the three #2 Phillips screws from the optical engine and then lift it up *slowly and carefully*. Be sure all cables (except the limit switch cables for a dual-lamp system) were removed before you lift it all the way out.



**Note:** You will need a long #2 Phillips magnetic screwdriver to remove the screw on the bottom right side.

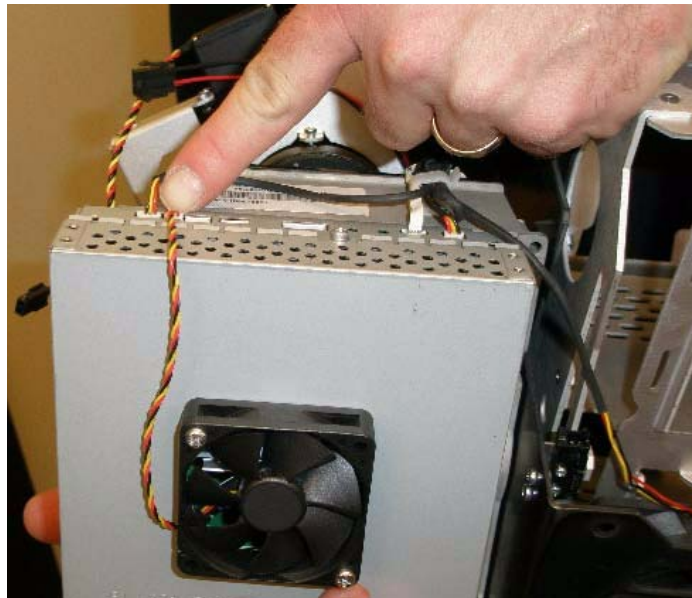
- 9 If this is a dual-lamp system, turn over the optical engine and disconnect the limit switch cables from the front and rear of the lamp switching mechanism.



**Note:** These cables are captured, so you will need to press in on the tabs to remove them.

### 3.1.7.1 Remove/Replace DMD Fan

- 1 With the optical engine removed, disconnect the DMD fan cable.

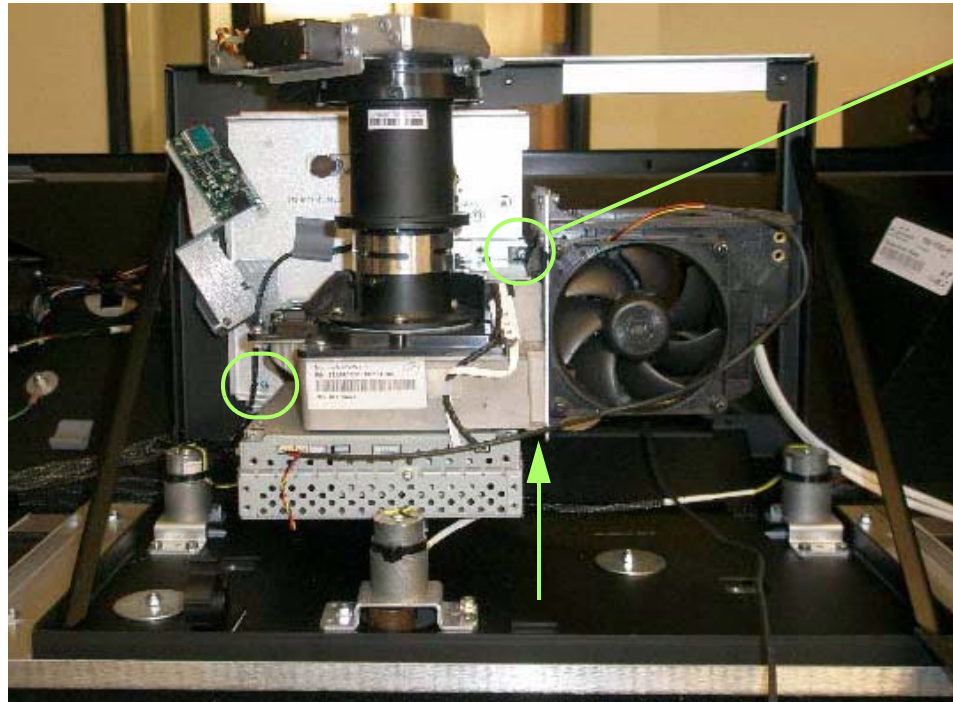


- 2 Remove the two screws that secure the DMD fan and remove it.
- 3 Place the new DMD fan in position and secure it with two screws.
- 4 Plug back in the DMD fan cable.

### 3.1.7.2 Replace the Optical Engine

**Note:** When you receive a new optical engine, you also receive a new color sensor board. If you are replacing the optical engine, you also need to remove and replace the color sensor board. ([Task 3.1.9 Remove/Replace Color Sensor on page 160](#))

- 1 If you have dual-lamp system, reconnect the limit switch cables to the front and rear of the lamp switching mechanism.
- 2 Lower the optical engine into place.



This picture shows a single-lamp unit. For a dual-lamp unit, this screw will be hard to see.

- 3 Loosely tighten the screw in the lower right corner.
- 4 Tighten the other two screws and then tighten the bottom screw more.

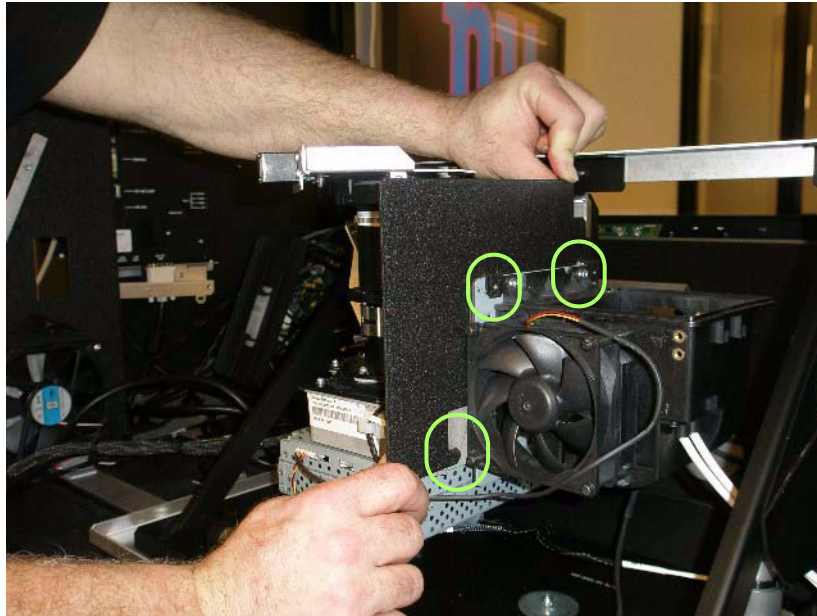
### 3 Gain Access: Remove Rear Panel

#### 3.1 Gain Access: Open Light Shield

##### 3.1.7 Remove the Optical Engine

##### 3.1.7.2 Replace the Optical Engine

- 5 Install the engine carrier light shield with the tabs over the top of the lamp carrier.



- 6 Replace all the connectors, following the previous pictures.

- 7 Place cables back into the cable clamps.

**Note:** Because the 50" and 67" units use the same cable harness, there will be extra length in the 50" units.

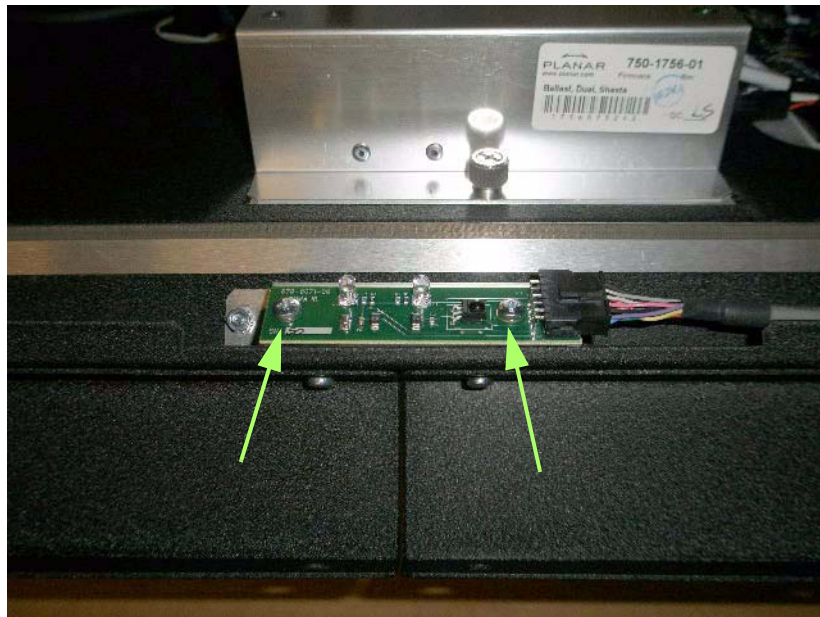
- 8 Replace the color sensor board. ([Task 3.1.9 Remove/Replace Color Sensor on page 160](#))

**Note:** Color sensor boards are calibrated for the engine with which they are mated.

- 9 If this is the end of service work, replace the rear panel. Then check and adjust image alignment. Always check Engine Alignment after replacing or even moving the optical engine. See the "Engine Alignment" section in the c50/c67R Installation & Configuration Guide for more information.

### 3.1.8 Remove/Replace IR/LED Board

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Power down the unit and remove the power cord.
- 3 Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 4 The IR/LED board is on the center of the forward edge of the chassis, below the screen. Disconnect cable from the IR/LED board and remove the two screws holding it.



**Note:** This picture is shown from the front.

- 5 Place the new IR/LED board in the same place as the old one, securing it with two screws.
- 6 Connect the cable to the new board.

## 3.1.9 Remove/Replace Color Sensor

- 1 Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2 Power down the unit and remove the power cord.
- 3 Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#)).
- 4 Reach through the opening and remove the three screws on the side of the sensor assembly.



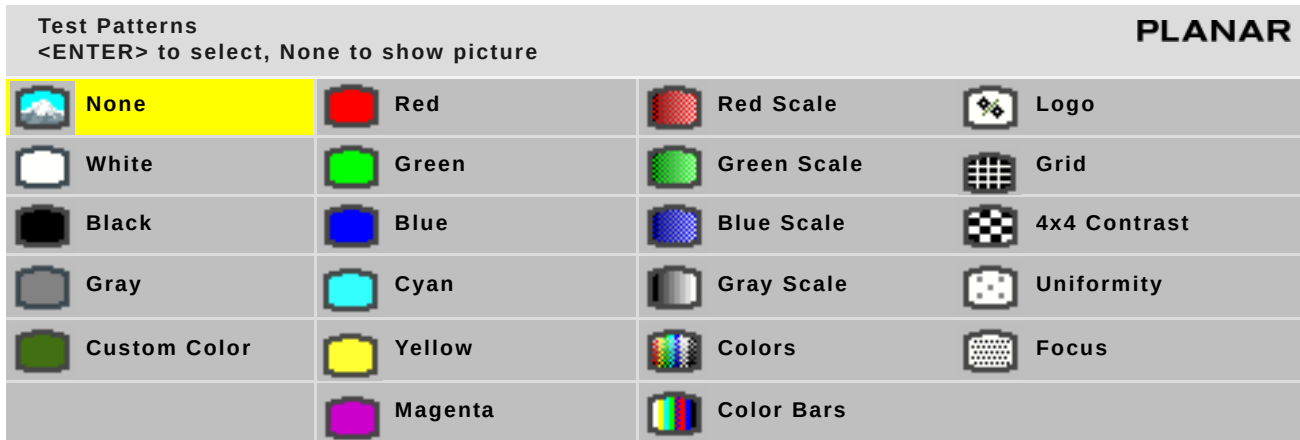
- 5 Disconnect the color sensor cable on the bottom of the sensor assembly.
- 6 Remove the ACB sensor assembly.
- 7 Put the new assembly in place.
- 8 Reconnect the color sensor cable and secure the assembly with the three screws.

**Note:** The ACB motor position value is stored on the color sensor. If you replace it, you will need to realign the ACB.

- 9 Align the ACB mirror. ([Task 3.1.9.1 Align ACB Mirror on page 161](#)).

### 3.1.9.1 Align ACB Mirror

- 1 Open the TEST PATTERNS menu. (MENU > DIAGNOSTICS > TEST PATTERNS).



- 2 Select UNIFORMITY and press ENTER.
- 3 From the MAIN MENU, select PROGRAM INFORMATION.



### 3 Gain Access: Remove Rear Panel

#### 3.1 Gain Access: Open Light Shield

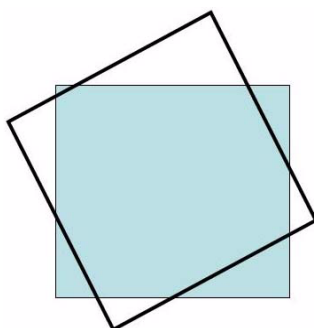
#### 3.1.9 Remove/Replace Color Sensor

#### 3.1.9.1 Align ACB Mirror

- 4 With this menu open, press the following arrow keys on the remote: up, up, right, left, down. The FACTORY SETTINGS menu appears.

| Factory Settings               |                           | PLANAR |
|--------------------------------|---------------------------|--------|
| Clear Last 10 Inputs Memory    |                           |        |
| Reset to Factory Defaults      |                           |        |
| Reset System to Start Download |                           |        |
| Disable IR Remote              |                           |        |
| OEM                            |                           | CSBU   |
| <input type="checkbox"/>       | Gamma (PW181)             |        |
|                                | YPbPr Calibration         | ▶      |
|                                | Engine/Ballast Parameters | ▶      |
| ACB Mirror: Actuate or Retract |                           |        |
| ACB Mirror: Actuated Position  |                           | 30     |
| <input type="checkbox"/>       | Hide Motor Menus (c80)    |        |

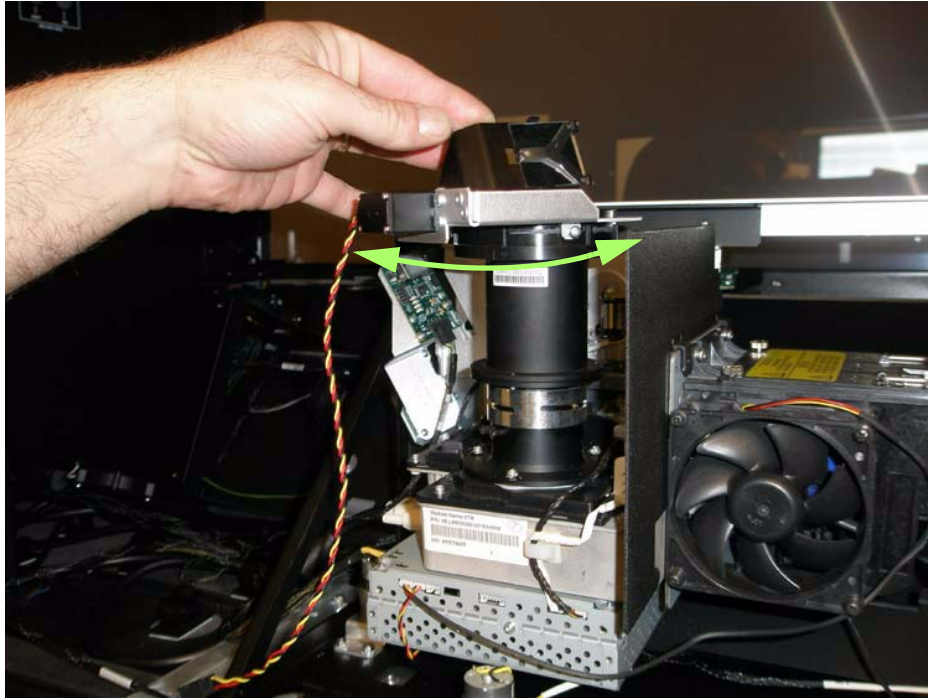
- 5 Using the arrow keys, select the ACB MIRROR: ACTUATE OR RETRACT line.
- 6 Press ENTER. This will cause the ACB mirror to flip up.
- 7 Look directly at the ACB sensor itself. Does the center square of the UNIFORMITY pattern hit the sensor chip at a diagonal angle?
  - If yes, you are finished and can close the menu. This will cause the ACB mirror to return to the nominal position.
  - If no go to step 8.



The shaded blue square represents the color sensor block and the black square represents the image of the center square of the uniformity test pattern.

- 8 Select the ACB MIRROR: ACTUATED POSITION line. Use the -/+ arrow keys on the remote to adjust the mirror position until the center square is at a diagonal angle in the center of the ACB sensor. To help you better see the little squares, hold a small white paper in front of the sensor block.

- 9 If the ACB mirror is still not aligned, rotate the ACB mirror assembly left or right until the center square of the UNIFORMITY pattern hit the sensor chip at a diagonal angle.

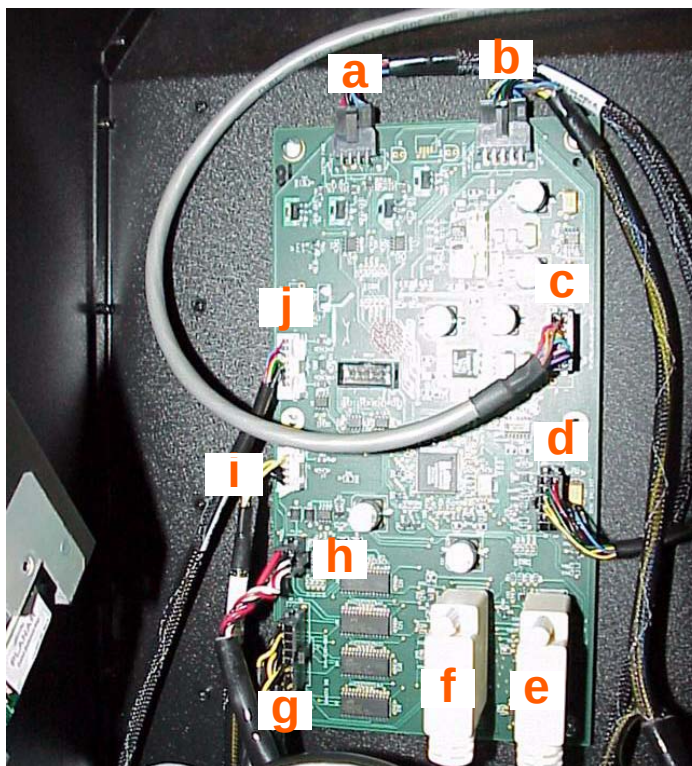


This picture shows an RP focal lens. An RX lens is shorter.

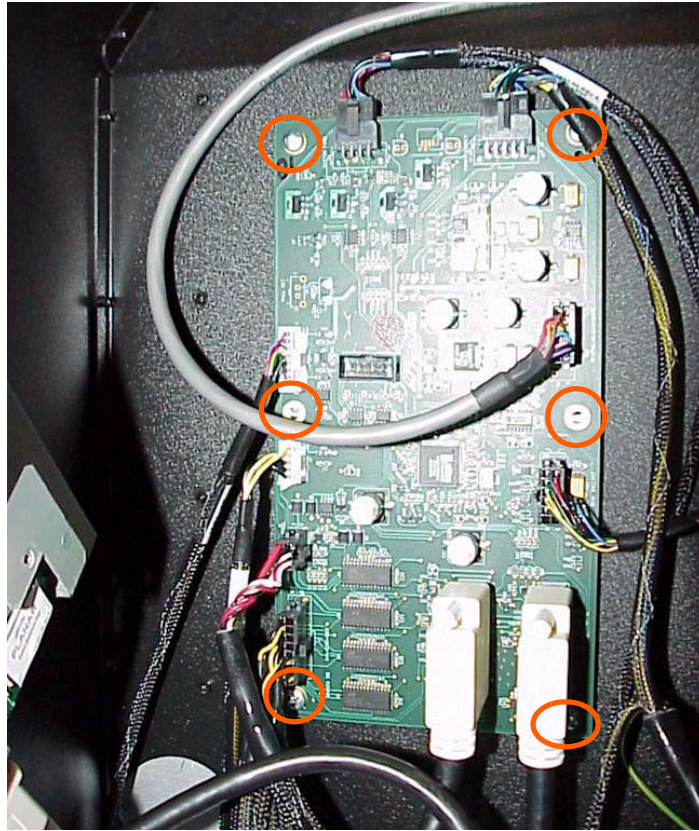
- 10 Select the ACB MIRROR: ACTUATE OR RETRACT line and press ENTER. This will cause the ACB mirror to return to the nominal position. Repeat steps 6-9 until the ACB mirror is aligned.

## 3.1.10 Remove/Replace System Interface Board (SIB)

- 1** Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2** Power down the unit and remove the power cord.
- 3** Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#)).
- 4** Unplug the following cables:
  - a** Fan cable
  - b** Power cable
  - c** IR sensor/hi-bright LED board cable
  - d** Ballast control cable
  - e** DVI cable (to engine)
  - f** DVI cable (to control board)
  - g** Engine mount motor control cable
  - h** Lamp switcher control cable (dual-lamp only)
  - i** Engine power cable
  - j** ACB cable (mirror and sensor)



- 5 Remove the six screws that secure the SIB.

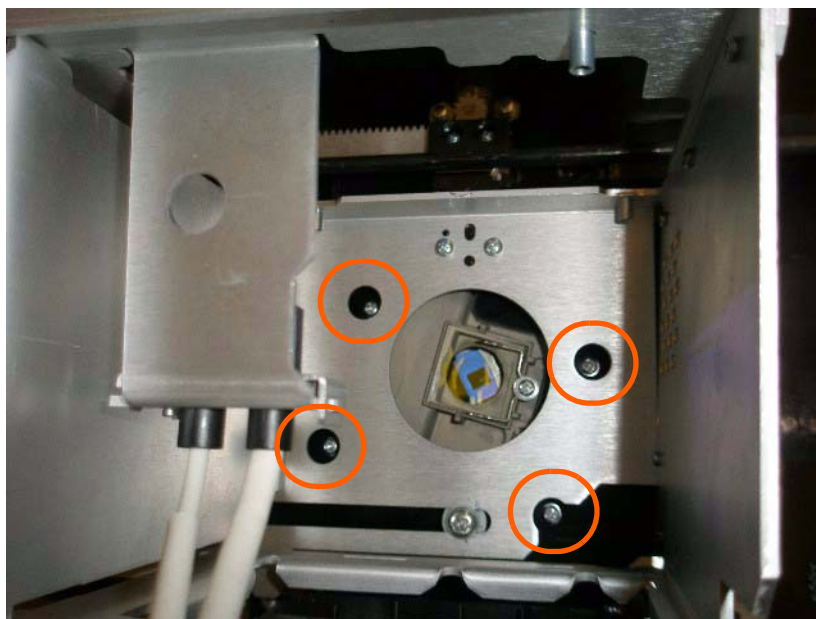


- 6 Remove the old SIB and put the new SIB in the same place.
- 7 Reinstall the six screws that secure the board.
- 8 Plug in the following cables:
- a** Fan cable
  - b** Power cable
  - c** IR sensor/hi-bright LED board cable
  - d** Ballast control cable
  - e** DVI cable (to engine)
  - f** DVI cable (to control board)
  - g** Engine mount motor control cable
  - h** Lamp switcher control cable (dual-lamp only)
  - i** Engine power cable
  - j** ACB cable (mirror and sensor)

**Note:** Each connector is unique and keyed.

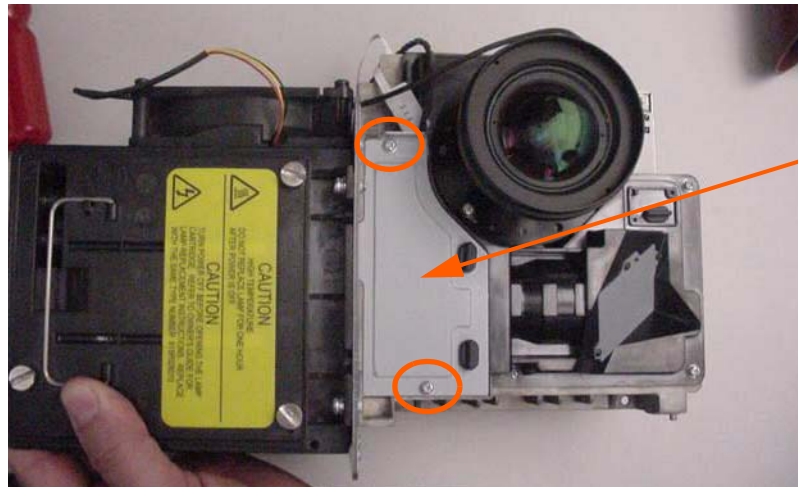
## 3.1.11 Remove/Replace Color Wheel

- 1** Using the remote control, turn off the lamp and allow the cooling fans to stop (approximately one minute) before proceeding.
- 2** Power down the unit and remove the power cord.
- 3** Remove the rear panel. ([Task 3 Gain Access: Remove Rear Panel on page 134](#))
- 4** Do one of the following:
  - If you have a dual-lamp system, go to step **5**.
  - If you have a single-lamp system, go to step **9**.
- 5** Remove the optical engine. ([Task 3.1.7 Remove the Optical Engine on page 151](#))
- 6** For a dual-lamp system, remove both lamps.
- 7** Depending on where the lamp switcher is, remove the four screws that secure the lamp switcher assembly that is covering the color wheel.



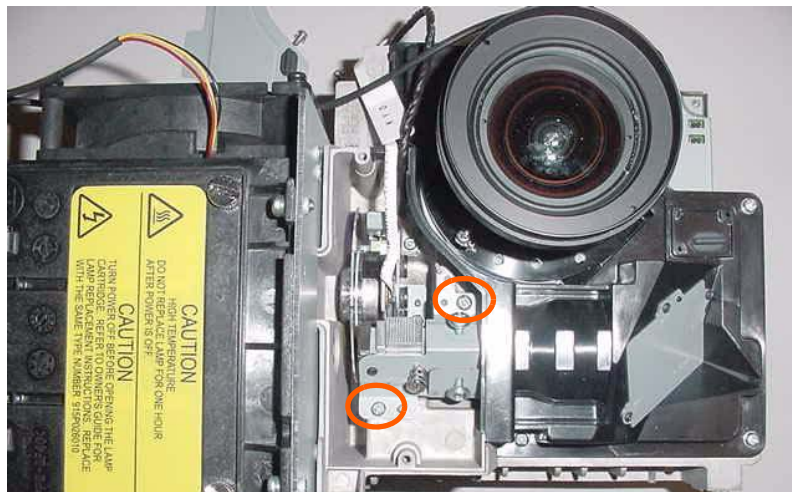
- 8** Lift off the lamp switcher assembly.

- 9 Remove two #1 Phillips screws and lift off the cover.

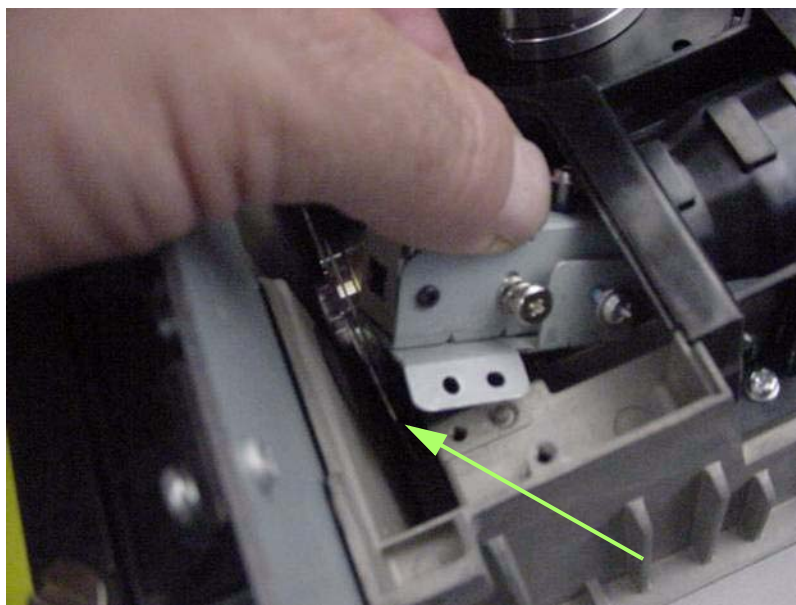


Remove two screws,  
then cover.

- 10 Remove two #2 Phillips screws.

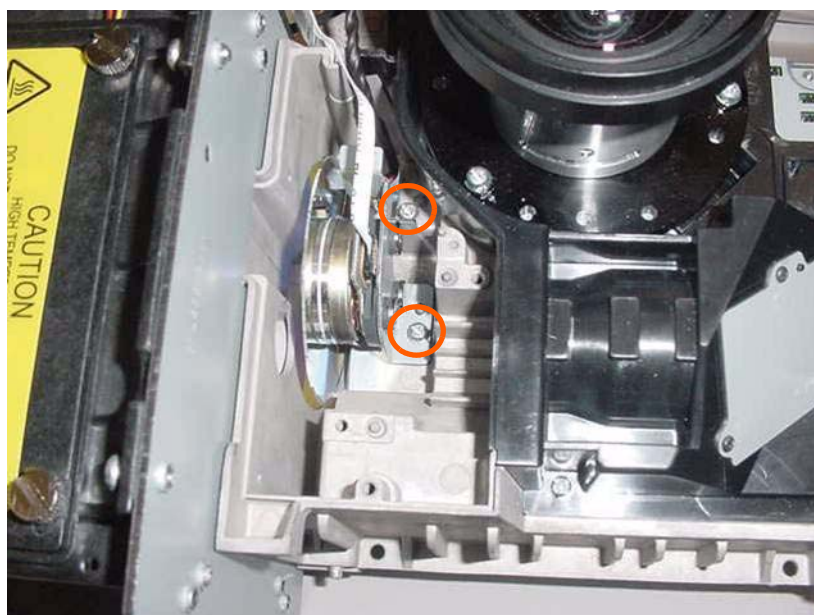


- 11 Carefully lift straight up on the input side of the mirror tunnel to clear the edge of the color wheel and then lift it out.

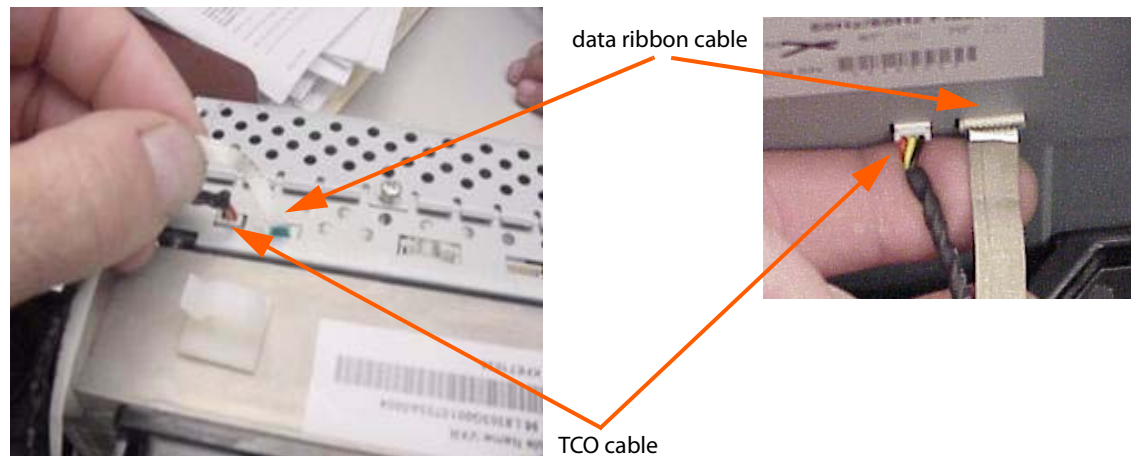


**Caution:** Be careful not to hit the color wheel as you pull out the mirror tunnel.

- 12 Remove two more #2 Phillips screws.



- 13** Using your fingernail, carefully disconnect the data ribbon cable and the TCO cable from the DMD housing. Do not pull on the cable.



**Note:** The connector pins of the data ribbon cable face upwards.

- 14** Lift the color wheel up and out using the handle ring (under the ribbon cable in the picture).
- 15** Insert the new color wheel into place and secure it with two screws. It is keyed to fit in an exact position.



- 16** Reconnect the data ribbon cable and the TCO cable to the DMD housing.
- 17** Replace two #2 Phillips screws, as shown in step **12**.
- 18** Slide the mirror tunnel back into place.
- 19** Replace two #2 Phillips screws, as shown in step **10**.
- 20** Replace the cover and secure it with two #1 Phillips screws, as shown in step **9**.
- 21** If you have a dual-lamp system, Replace the optical engine. ([Task 3.1.7.2 Replace the Optical Engine on page 157](#))
- 22** Replace the rear panel. ([Task 4 Replace Rear Panel on page 172](#))

**23** Plug in the power cord and turn the unit on.

**24** If necessary, recalibrate the color index. ([Task 3.1.11.1 Recalibrating the Color Index on page 170](#)).

### 3.1.11.1 Recalibrating the Color Index

**1** On the remote, press ON.

**2** When the lamp(s) lights, press MONITOR three times on the remote. The TEST PATTERNS menu appears.

| Test Patterns<br><ENTER> to select, None to show picture                                                |                                                                                                    |                                                                                                       | PLANAR                                                                                                  |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  <b>None</b>           |  <b>Red</b>       |  <b>Red Scale</b>    |  <b>Logo</b>         |
|  <b>White</b>          |  <b>Green</b>     |  <b>Green Scale</b>  |  <b>Grid</b>         |
|  <b>Black</b>          |  <b>Blue</b>      |  <b>Blue Scale</b>   |  <b>4x4 Contrast</b> |
|  <b>Gray</b>          |  <b>Cyan</b>     |  <b>Gray Scale</b>  |  <b>Uniformity</b>  |
|  <b>Custom Color</b> |  <b>Yellow</b>  |  <b>Colors</b>     |  <b>Focus</b>      |
|                                                                                                         |  <b>Magenta</b> |  <b>Color Bars</b> |                                                                                                         |

**3** Select the RED SCALE option and press ENTER.

**4** Press MENU on the remote.

**5** From the MAIN MENU, select PROGRAM INFORMATION.

| Program Information                                                                                                                                                                                                            | PLANAR |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>Planar Systems, Inc.</b><br><b>Control Room &amp; Digital Signage Division</b><br><b>1195 NW Compton Drive</b><br><b>Beaverton, OR 97006 USA</b><br><b>+1.866.475.2627</b><br><b>+503.748.1100</b><br><b>www.planar.com</b> |        |
| <b>RX/RP Series 1024 x 768</b><br><b>010-0983 Rev 00</b>                                                                                                                                                                       |        |
| <b>Code Generated Date: Apr 18 2008 at 09:08:35</b><br><b>GUI Generated Date: April 18, 2008 at 09:08:35</b>                                                                                                                   |        |

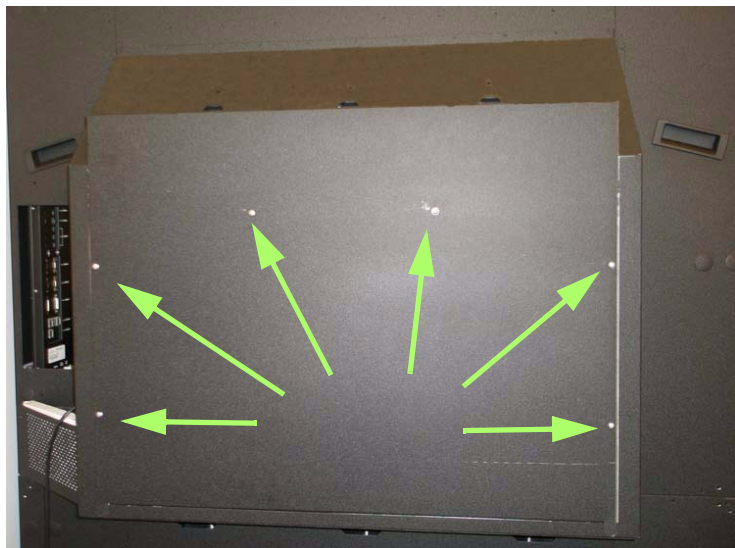
- 6 With this menu open, press the following arrow keys on the remote: up, up, right, left, down. The FACTORY SETTINGS menu appears.

| Factory Settings               |                           | PLANAR |
|--------------------------------|---------------------------|--------|
| Clear Last 10 Inputs Memory    |                           |        |
| Reset to Factory Defaults      |                           |        |
| Reset System to Start Download |                           |        |
| Disable IR Remote              |                           |        |
| OEM                            |                           | CSBU   |
| <input type="checkbox"/>       | Gamma (PW181)             |        |
|                                | YPbPr Calibration         | ▶      |
|                                | Engine/Ballast Parameters | ▶      |
| ACB Mirror: Actuate or Retract |                           |        |
| ACB Mirror: Actuated Position  |                           | 30     |
| <input type="checkbox"/>       | Hide Motor Menus (c80)    |        |

- 7 Select ENGINE/BALLAST PARAMETERS.
- 8 Highlight INDEX DELAY and use the left/right arrows to move the index delay to the left or right. You want a smooth gradient from vivid red on the right to black on the far left.
- 9 When you are finished, press MENU to close the menus.

## 4 Replace Rear Panel

- 1 Set the lower edge of the rear panel on the lower edge of the chassis. The panel has three tabs; the center one goes outside the chassis, and the left and right tabs go inside the chassis.
- 2 Secure the six captive screws on the back.



- 3 Replace any in/out cables that were removed. Replace the power cord and turn on the power.

# Accessing Planar's Technical Support Website

- 1 Go to [www.planarsignage.com/partners](http://www.planarsignage.com/partners)  
Under "Partner login", click on CONSULTANTS AND DESIGNERS  
User name: tech  
Password: help
- 2 From there, you can access downloadable utility software, new firmware, user manuals, and service manuals.
- 3 To access information for a specific model, click on that model name. For example, to download an electronic copy of this manual, click on c50/c67R.

**PLANAR** When image experience matters.

## Partners

CONTROL ROOM DIGITAL SIGNAGE SUPPORT PARTNERS CONTACT US

### CONSULTANTS AND DESIGNERS

Overview

Technical Resources

Field Replaceable Unit (FRU) List

Policies and Processes

Utility Software

CAD Drawings

Tools

List Pricing

Training

Service Training

### Consultants and Designers

For consultants and designers, the following information is available for download:

#### Technical Resources

- Bay Cat (SN-4610-1080)
- Bay Cat X (SN-4620-1080)
- Bengal (SN-6010-720)
- Bobcat I (SN-4025-VWX)
- Bobcat II (SN-4035-VWX)
- Bobcat X (SN-4045-VWX)
- c50SP, c67SP, c70SPw
- c50X, c67X
- c50RP, c67RP & c50RX, c67RX
- Cheetah (VN-4020-V)
- Cougar (VN-5220-S)
- Jaguar (VN-5220-V)
- Leopard (VN-3820-VA)
- Lion X, SX, UX (VN-6720-X, VN-6720-SX, VN-6720-UX)
- Lion XP, SXP, UXP (VN-6720-XP, VN-6720-SXP, VN-6720-UXP)
- Lion XL, UXL (VN-6750-XL, VN-6750-UXL)
- Lynx (SN-4215-P)
- Margay (VN-5040-720)
- m40L, m46L
- m57L
- m70L
- Panther (PN-6730-UX & PN-6740-UX)
- Panther LXP (PN-6740-LXP)
- Puma (VN-5010-X, VN-5020-XP, VN-5020-UXP)
- Tiger (VN-5240-S)
- Tigress (VN-5230-S)
- Tigress S (VN-5230A-S)
- Tigress X (VN-5230A-X)
- Wildcat (VN-4030-S)
- Wildcat SE (VN-4030-SE)

### Contact Information

**Planar Systems, Inc.**  
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[controlroom@planar.com](mailto:controlroom@planar.com)  
Digital Signage:  
[digital signage@planar.com](mailto:digital signage@planar.com)

**Technical Support**  
Phone: 503-748-5799  
Toll-free: 1-866-PLANAR1  
(1-866-752-6271)  
Fax: 503-748-5532  
Email: [ts@planar.com](mailto:ts@planar.com)

To access user guides, service manuals, firmware, and other resources for a particular model, click the model name.

## Downloading Additional Documentation and Firmware

Some of the other documents for the c50/c67R, which are or will be available from the Technical Support Department website, are listed below:

| Document Name          | Contents                                                                                                                     |
|------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Installation Guide     | Information for installers and technicians to install and configure displays.                                                |
| Quick Start Guide      | Gives you the basic information you need to get displays up and running.                                                     |
| Service Manual         | Troubleshooting steps that provide a logical front-end to service and maintenance instructions.                              |
| RS232 Reference Manual | Technical information about the product, such as display mode information and how to use RS232 commands to control displays. |

## Downloading Utility Software

- 1 Read the instructions listed under "Accessing Planar's Technical Support Website" on page 173.
- 2 Click Utility Software.
- 3 From the list of available software, click on the tool you need.  
For example, to control the c50/c67R using RS232 commands, download Serial Talk. You may also want to download the document "Using Serial Talk."

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